



United States
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Agriculture



Natural
Resources
Conservation
Service

In cooperation with
United States Department
of Interior, Bureau of Land
Management and National
Park Service; and the
Colorado Agricultural
Experiment Station

Soil Survey of Cortez Area, Colorado, Parts of Dolores and Montezuma Counties



How to Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

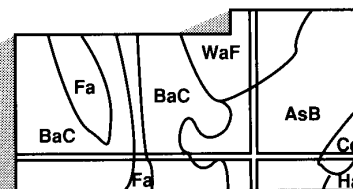
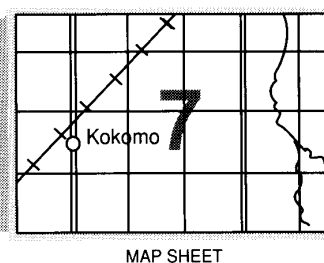
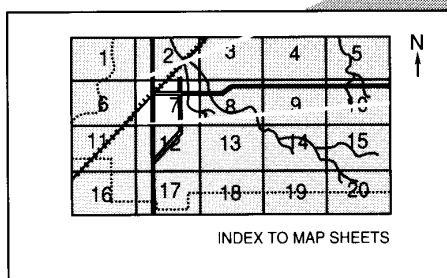
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1995. Soil names and descriptions were approved in 1997. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1997. This survey was made cooperatively by the Natural Resources Conservation Service and the Colorado Agricultural Experiment Station; and the United States Department of the Interior, Bureau of Land Management and National Park Service. The survey is part of the technical assistance furnished to the Dolores, Dove Creek and Mancos Soil Conservation Districts.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Cover: Yellow Jacket Canyon. Soils of the Romberg-Crosscan-Rock outcrop complex, 25 to 80 percent slopes, are on the canyon sideslopes, and Ustic Torrfluvents, 0 to 3 percent slopes, are in the canyon bottom.

Contents

Cover	1
How to Use This Soil Survey	2
Contents	4
Foreword	10
Introduction	11
General Nature of the Area	11
History	12
Physiography	13
Geology	13
Natural Resources	13
Climate	13
How This Survey Was Made	14
General Soil Map Units	16
Soil Descriptions	16
Soils on flood plains, stream terraces and alluvial fans	16
1. Mikim-Mikett	16
2. Lillings-Ramper-Fluents	17
Soils on hills and mesas	17
3. Mack-Farb	17
4. Barx-Gapmesa-Rizno	18
5. Wetherill-Pulpit-Gladel	18
6. Granath-Ilex-Ormiston	19
7. Morefield-Arabrab-Longburn	20
Rock outcrop and soils in canyons, on hills and mountains	21
8. Typic Torriorthents-Claysprings-Uzacol ..	21
9. Romberg-Crosscan-Rock Outcrop	22
10. Sideshow-Zigzag	22
11. Wauquie-Dolcan-Rock Outcrop	23
12. Sheek-Archuleta-Pramiss	24
13. Northrim-Prater-Sheek	24
Broad Land Use Considerations	25
Detailed Soil Map Units	26
Soil Descriptions	27
1—Ackmen loam, 1 to 3 percent slopes	27
2—Ackmen loam, 3 to 6 percent slopes	27
3—Arabrab loamy sand, 3 to 9 percent slopes	28
4—Arabrab-Longburn complex, 3 to 15 percent slopes	29
5—Archuleta-Sanchez complex, 12 to 65 percent slopes	30
6—Argiustolls-Haplustalfs complex, 30 to 80 percent slopes	31
7—Argiustolls-Haplustalfs-Rock outcrop complex, 30 to 80 percent slopes	32
8—Barx loam, 3 to 6 percent slopes	33
9—Barx loam, 6 to 12 percent slopes	34
10—Barx very fine sandy loam, 1 to 4 percent slopes	35
11—Barx-Gapmesa complex, 2 to 6 percent slopes	35
12—Battlerock clay loam, 0 to 6 percent slopes	36
13—Beje-Tragmon complex, 3 to 9 percent slopes	37
14—Burnson loam, 1 to 15 percent slopes	38
15—Burnson loam, dry, 1 to 15 percent slopes	39
16—Burnson-Herm complex, 15 to 30 percent slopes	40
17—Cahona loam, 1 to 3 percent slopes	41
18—Cahona loam, 3 to 6 percent slopes	42
19—Cahona loam, 6 to 12 percent slopes	42
20—Cahona-Pulpit complex, 3 to 9 percent slopes	43
21—Cahona-Sharps-Wetherill complex, 2 to 6 percent slopes	44
22—Claysprings very stony clay loam, 12 to 65 percent slopes	46
23—Collide clay loam, 3 to 6 percent slopes	46
24—Collide clay loam, 6 to 12 percent slopes	47
25—Collide complex, 0 to 2 percent slopes	48
26—Collide complex, 2 to 6 percent slopes	49
27—Dalmatian-Apmay-Schrader complex, 0 to 5 percent slopes	50
28—Dam	51
29—Endoaquolls-Ustifluents complex, 0 to 5 percent slopes	51
30—Falconry gravelly fine sandy loam, 3 to 25 percent slopes	52
31—Farb-Rock outcrop complex, 3 to 12 percent slopes	53
32—Fardraw loam, 3 to 15 percent slopes	54

33—Fardraw very cobbly loam, 0 to 9 percent slopes	55	60—Ilex-Pramiss-Falconry complex, 3 to 20 percent slopes	79
34—Fardraw very cobbly loam, 9 to 25 percent slopes	55	61—Ilex-Pramiss-Granath complex, 2 to 9 percent slopes	81
35—Fardraw-Granath complex, 3 to 12 percent slopes	56	62—Irak loam, 0 to 3 percent slopes	82
36—Fivepine-Nortez complex, 0 to 15 percent slopes	57	63—Jemco-Detra-Beje complex, 1 to 15 percent slopes	83
37—Fluvaquents-Haplustolls complex, 0 to 5 percent slopes	58	64—Lazear-Rock outcrop complex, 12 to 65 percent slopes	84
38—Fluvents-Fluvaquents complex, 0 to 3 percent slopes	59	65—Lillings silt loam, sodic, 1 to 3 percent slopes	85
39—Fughes loam, 1 to 12 percent slopes	61	66—Lillings silty clay loam, 1 to 3 percent slopes	86
40—Fughes-Herm complex, 5 to 25 percent slopes	61	67—Lillings silty clay loam, 3 to 6 percent slopes	87
41—Fughes-Sheek complex, 15 to 30 percent slopes	62	68—Longburn-Rock outcrop complex, 10 to 45 percent slopes	88
42—Gladel-Pulpit complex, 3 to 9 percent slopes	63	69—Longburn-Rock outcrop complex, 45 to 80 percent slopes	88
43—Goldbug very stony fine sandy loam, 5 to 30 percent slopes	64	70—Mack fine sandy loam, 0 to 6 percent slopes	89
44—Granath loam, 3 to 6 percent slopes	65	71—Mikett clay loam, saline-sodic, 0 to 3 percent slopes	90
45—Granath loam, 6 to 12 percent slopes	66	72—Mikett clay loam, 0 to 3 percent slopes	91
46—Granath-Fughes complex, 0 to 15 percent slopes	67	73—Mikim clay loam, 1 to 3 percent slopes	92
47—Granath-Nortez complex, 0 to 15 percent slopes	68	74—Mikim clay loam, sodic, 0 to 3 percent slopes	92
48—Granath-Ormiston-Fivepine complex, 0 to 15 percent slopes	69	75—Mikim loam, 3 to 6 percent slopes	93
49—Herm loam, 6 to 25 percent slopes	70	76—Morefield loam, 1 to 3 percent slopes	94
50—Herm very cobbly loam, 15 to 40 percent slopes	71	77—Morefield loam, 3 to 6 percent slopes	95
51—Herm-Pagoda complex, 0 to 15 percent slopes	72	78—Nortez-Granath complex, 0 to 6 percent slopes	95
52—Hesperus loam, 0 to 3 percent slopes	73	79—Northrim cobbly loam, 15 to 40 percent slopes	96
53—Hesperus loam, 3 to 6 percent slopes	74	80—Ormiston-Beje complex, 5 to 30 percent slopes	97
54—Hesperus loam, 6 to 12 percent slopes	74	81—Ormiston-Fivepine complex, 0 to 15 percent slopes	98
55—Hesperus sandy loam, 3 to 12 percent slopes	75	82—Ormiston-Granath complex, 1 to 12 percent slopes	99
56—Ilex loam, 3 to 12 percent slopes	76	83—Ormiston-Nortez complex, 3 to 12 percent slopes	101
57—Ilex loam, 12 to 25 percent slopes	76	84—Payter sandy loam, 3 to 15 percent slopes	102
58—Ilex-Granath complex, 2 to 6 percent slopes	77	85—Pinacol loam, 1 to 12 percent slopes	103
59—Ilex-Granath complex, 6 to 12 percent slopes	78		

86—Pinacol loam, 12 to 40 percent slopes	104	114—Sharps loam, dry, 6 to 12 percent slopes	128
87—Pits	104	115—Sharps, dry-Gapmesa complex, 6 to 12 percent slopes	128
88—Pogo loam, 0 to 2 percent slopes	105	116—Sharps-Cahona complex, 6 to 12 percent slopes	130
89—Pramiss very cobbly loam, 6 to 25 percent slopes	106	117—Sharps-Pulpit complex, 2 to 6 percent slopes	131
90—Pramiss-Granath complex, 3 to 9 percent slopes	107	118—Sharps-Pulpit complex, 6 to 12 percent slopes	132
91—Prater loam, 10 to 25 percent slopes	108	119—Sheek-Archuleta complex, 6 to 25 percent slopes	133
92—Prater-Dolcan complex, 25 to 60 percent slopes	109	120—Sheek-Archuleta-Rock outcrop complex, 25 to 80 percent slopes,	134
93—Pulpit loam, 3 to 12 percent slopes	110	121—Sheek-Archuleta-Rock outcrop complex, 25 to 80 percent slopes, north aspect,	135
94—Pulpit loam, 3 to 6 percent slopes	111	122—Sheppard fine sand, 1 to 6 percent slopes	136
95—Pulpit loam, 6 to 12 percent slopes	111	123—Sideshow silty clay loam, 0 to 3 percent slopes	137
96—Purcella loam, 0 to 3 percent slopes ...	112	124—Sideshow silty clay loam, 3 to 6 percent slopes	138
97—Ramper clay loam, 0 to 3 percent slopes	113	125—Sideshow silty clay loam, 6 to 12 percent slopes	138
98—Ramper loam, 0 to 3 percent slopes	114	126—Sideshow-Zigzag complex, 3 to 25 percent slopes	139
99—Ravola clay loam, 0 to 3 percent slopes	114	127—Sideslide silty clay loam, 3 to 9 percent slopes	140
100—Recapture fine sandy loam, 0 to 6 percent slopes	115	128—Stephouse-Rock outcrop complex, 3 to 10 percent slopes	141
101—Recapture sandy loam, 0 to 6 percent slopes	116	129—Torriorthents, 12 to 65 percent slopes	142
102—Ricot loam, 1 to 3 percent slopes	117	130—Torriorthents-Badland complex, 25 to 100 percent slopes	143
103—Ricot loam, 3 to 6 percent slopes	117	131—Tragmon-Sheek complex, 12 to 25 percent slopes	144
104—Ricot loam, 6 to 12 percent slopes	118	132—Typic Argiaquolls, 0 to 3 percent slopes	145
105—Rizno-Gapmesa complex, 3 to 9 percent slopes	119	133—Typic Torriorthents-Rock outcrop complex, 12 to 80 percent slopes	146
106—Rizno-Littlenan-Bodry association, 3 to 50 percent slopes	120	134—Umbarg-Winner-Tesajo complex, 0 to 2 percent slopes	146
107—Rizno-Ruinpoint-Rock outcrop complex, 1 to 15 percent slopes	121	135—Ustic Torrifluvents, 0 to 3 percent slopes	148
108—Rock outcrop	122		
109—Romberg-Crosscan complex, 6 to 25 percent slopes	123		
110—Romberg-Crosscan-Rock outcrop complex, 25 to 80 percent slopes	124		
111—Roubideau loam, 1 to 6 percent slopes	125		
112—Sharps loam, 3 to 6 percent slopes	126		
113—Sharps loam, 6 to 12 percent slopes	127		

136—Ustic Torriorthents-Gullied land complex, 1 to 60 percent slopes	149	Sanitary Facilities	176
137—Ustorthents, 12 to 65 percent slopes	150	Construction Materials	177
138—Uzacol-Zwicker-Claysprings complex, 3 to 12 percent slopes	150	Water Management	178
139—Water	152	Soil Properties	180
140—Wauquie very stony loam, 6 to 25 percent slopes	152	Engineering Index Properties	180
141—Wauquie-Dolcan complex, 6 to 25 percent slopes	153	Physical Properties	181
142—Wauquie-Dolcan-Rock outcrop complex, 25 to 80 percent slopes	154	Chemical Properties	182
143—Wetherill loam, 1 to 3 percent slopes	156	Water Features	183
144—Wetherill loam, 3 to 6 percent slopes	156	Soil Features	184
145—Wetherill loam, 6 to 12 percent slopes	158	Physical and Chemical Analyses of Selected Soils	185
146—Yarts clay loam, 1 to 6 percent slopes	158	Classification of the Soils	186
147—Yarts fine sandy loam, 1 to 6 percent slopes	159	Soil Series and Their Morphology	186
148—Zau stony loam, 9 to 25 percent slopes	160	Ackmen Series	187
149—Zigzag very channery clay loam, 3 to 25 percent slopes	160	Apmay Series	187
150—Zigzag-Sideshow complex, 25 to 65 percent slopes	161	Arabrab Series	188
151—Zyme gravelly clay loam, 3 to 12 percent slopes	162	Archuleta Series	189
152—Zyme very channery clay loam, 12 to 65 percent slopes	163	Argiustolls	190
Use and Management of the Soils	165	Barx Series	191
Interpretive Ratings	165	Battlerock Series	192
Crops	165	Beje Series	192
Yields per Acre	167	Bodry Series	193
Land Capability Classification	167	Burnson Series	194
Hydric Soils	168	Cahona Series	195
Prime Farmland	169	Claysprings Series	196
Rangeland	170	Collide Series	196
Recreation	172	Crosscan Series	197
Wildlife Habitat	173	Dalmatian Series	198
Engineering	174	Detra Series	199
Building Site Development	175	Dolcan Series	200
		Endoaquolls	200
		Falconry Series	201
		Farb Series	202
		Fardraw Series	203
		Fivepine Series	204
		Fluvaquents	204
		Fluvents	205
		Fughes Series	206
		Gapmesa Series	207
		Gladel Series	207
		Goldbug Series	208
		Granath Series	209
		Haplustalfs	210
		Haplustolls	211
		Herm Series	212

Hesperus Series	213	Umbarg Series	250
Ilex Series	214	Ustic Torrifluvents	251
Irak Series	215	Ustic Torriorthents	251
Jemco Series	215	Ustifluvents	252
Lazear Series	216	Ustorthents	253
Lillings Series	217	Uzacol Series	253
Littlean Series	218	Wauquie Series	254
Longburn Series	218	Wetherill Series	255
Mack Series	219	Winner Series	257
Mikett Series	220	Yarts Series	258
Mikim Series	221	Zau Series	258
Morefield Series	222	Zigzag Series	259
Nortez Series	223	Zwicker Series	260
Northrim Series	223	Zyme Series	261
Ormiston Series	224	Formation of Soils	262
Pagoda Series	225	Climate	262
Payter Series	226	Topography	263
Pinacol Series	227	Plant and Animal Life	264
Pogo Series	228	Time	264
Pramiss Series	228	Parent Material	264
Prater Series	229	Eolian	264
Pulpit Series	230	Alluvium	264
Purcella Series	231	Colluvium and Slope Alluvium	265
Ramper Series	232	Residuum	265
Ravola Series	233	References	266
Recapture Series	234	Glossary	268
Ricot Series	235	Tables	282
Rizno Series	236	Table 1.—Temperature and Precipitation	282
Romberg Series	236	Table 2.—Freeze Dates in Spring and Fall	287
Roubideau Series	238	Table 3.—Growing Season	289
Ruinpoint Series	238	Table 4.—Acreage and Proportionate Extent of the Soils	290
Sanchez Series	239	Table 5.—Land Capability and Yields per Acre of Crops and Pasture	294
Schrader Series	240	Table 6.—Prime Farmland	308
Sharps Series	241	Table 7.—Productivity and Characteristic Plant Communities	309
Sheek Series	242	Table 8.—Recreational Development	362
Sheppard Series	243	Table 9.—Wildlife Habitat	380
Sideshow Series	244	Table 10.—Building Site Development	398
Sideslide Series	244	Table 11.—Sanitary Facilities	425
Stephouse Series	245	Table 12.—Construction Materials	447
Tesajo Series	246	Table 13.—Water Management	466
Torriorthents	247	Table 14.—Engineering Index Properties	495
Tragmon Series	247		
Typic Argiaquolls	248		
Typic Torriorthents	249		

Table 15.—Physical Properties of the Soils	546	Table 17.—Water Features	597
Table 16.—Chemical Properties of		Table 18.—Soil Features	613
the Soils	575	Table 19.—Classification of the Soils	626

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Soil Survey of Cortez Area, Colorado, Parts of Dolores and Montezuma Counties

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United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
U. S. Department of the Interior, Bureau of Land Management and National Park Service; Mesa Verde National Park; the Dolores Soil Conservation District; the Dove Creek Soil Conservation District; the Mancos Soil Conservation District; and the Colorado Agricultural Experiment Station

Introduction

This soil survey updates the survey of Wetherill Mesa Area, Mesa Verde National Park, Colorado. This survey was completed in 1964 as part of the Wetherill Mesa Archeological Project (Parsons, USDA-SCS, 1964).

General Nature of the Area

The Cortez Soil Survey Area is located in the southwest part of Colorado (fig. 1). It covers a total area of 779,400 acres and includes the western portion of Dolores County (182,500 acres) and the central and northwestern portions of Montezuma County (596,900 acres). Dove Creek, the county seat of Dolores County, is located in the western portion of the county and has a population of 900. Cortez, the county seat of Montezuma County, is located near the center of the county and has a population of 8,100. The total population of the survey area is about 19,000.

The survey area has a wide range of vegetation types, climates, and elevations. The southwestern zone is dry and sparsely vegetated with desert shrubs and grasses. This zone ranges from about 5,000 feet to 5,700 feet in elevation and receives 8 to 10 inches of precipitation per year. Both elevation and precipitation gradually increase from the southwest to



Figure 1.— Location of the Cortez area in Colorado.

the northeast. The next zone is dominated by sagebrush, pinyon pine, and Utah juniper. This zone ranges from about 5,700 feet to 7,400 feet and receives 10 to 15 inches of precipitation per year. The highest zone, in the northeastern edge of the survey area, consists of Gambel's oak, grasses, and areas of scattered Ponderosa pine. This zone ranges from about 7,400 feet to 8,500 feet in elevation and receives 15 to 20 inches of precipitation per year.

The major economic activities of the area are recreation and agriculture. Recreational areas include Mesa Verde National Park, Hovenweep National

Monument, and McPhee Reservoir. The primary irrigated crops are alfalfa and small grains. The main dryland crops are pinto beans and winter wheat.

The soils of the survey area range widely in texture, depth, and other characteristics. Soils in the southwestern part of the survey area have formed in the canyons and valleys of the McElmo Creek drainage. These soils tend to be clayey and shallow in depth. Coarse fragments are generally on the surface and range in size from gravel to boulders. The area in the lower Montezuma Valley south of Cortez consists of very deep alluvial soils that have weathered from the Mesa Verde and Mancos Formations. These soils tend to be stratified and loamy in texture, and they often contain a higher level of salinity than soils of other areas. The remaining area of the survey consists of uplands and mesas covered by a reddish eolian mantle. These soils tend to be shallowest along the edges of the mesas and rapidly increase in depth as one moves away from the edges. Textures are loamy and the depth to calcium carbonate varies with landscape position.

History

Though the presence of humans in the southwest corner of Colorado dates back several thousand years, it was not until about 1,500 years ago that native people began to make this area their permanent home. These early residents, known as the Anasazi or ancestral puebloans, lived in the abundant sandstone caves and survived by hunting and the cultivation of corn and squash. As time progressed, they developed pit houses and kivas and added cultivated beans to their diet. Around 900 A.D., large pueblos and villages came into prominence. The population continued to grow, and the Anasazi culture flourished. In the 1200's the burgeoning community developments moved into the large, sheltering sandstone alcoves of the Mesa Verde Plateau. They added their own impressive masonry to the natural caves, creating expansive community dwellings, many of which still exist today. But by the early 1300's, these early people had deserted the area.

The cause of this abandonment-whether the result of climatic changes, environmental degradation, or external forces-is not completely understood.

After the abandonment of this region by the Anasazi, Ute Indians moved through this area during seasonal migrations and hunting trips. The first Europeans to enter this area were the Friars Escalante and Dominguez. They, along with twelve

companions, crossed over Mancos hill and entered the Montezuma Valley in 1776, the same year that the Declaration of Independence was signed. The party camped in the areas of Mancos and Dolores before moving west in search of a route to the Pacific Ocean. Later, in 1831, Kit Carson camped in the vicinity of the Mancos River.

It was not until the 1870's that gold and silver miners came to the area in search of riches. By the 1880's settlers began to arrive, and communities developed in the Mancos and Dolores Valleys. In 1886 the town of Cortez was platted, and Montezuma County was formed in 1889 from the western portion of La Plata County. The Rio Grande Southern Railroad arrived in the area in 1891. It operated until the line was abandoned in 1952; the tracks were torn up in 1953.

In Dolores County to the north, the economic mainstay was ranching and later dryland farming. Dove Creek, the county seat, was incorporated in 1939.

The lifeblood of all communities in the west is water. Cortez and the Montezuma Valley owe their existence and prosperity to water diverted from the Dolores River. In 1893, after several attempts and financial problems, the Dolores Tunnel was completed and the water began to flow, supplying irrigation water for 29,000 acres in the Montezuma Valley. McPhee Reservoir was completed on the Dolores River in 1989 near the town of Dolores. This project provided a dependable source of irrigation for the farmers of the Montezuma Valley, supplying water to 28,000 acres of previously nonirrigated cropland to the north and to the west. In the early 1900's, many apple orchards were planted. Irrigated crops now include alfalfa and grass hay along with some areas of small grains. The nonirrigated areas have produced large quantities of pinto beans and wheat over the last century.

On a cold December day in 1888, Richard Wetherill was moving along a canyon edge looking for stray cattle when he made a discovery that has affected this area ever since. Looking down through the falling snow, he caught a glimpse of the largest cliff dwelling in North America: Cliff Palace, an abandoned Anasazi village with 149 rooms and 24 kivas. The discovery of Cliff Palace marked the beginning of an intense archaeological interest in the area. In 1906, Mesa Verde National Park was created to protect and preserve many of the area's unique archaeological sites for future generations. Mesa Verde National Park is a major economic resource for

this area, drawing over 600,000 domestic and international visitors annually. Tourism and recreation have increased steadily through the years and play a vital role in the area's economy.

Physiography

The Cortez Soil Survey Area lies within the Colorado Plateau's physiographic province and consists principally of a gently sloping plain, known locally as the Dolores Plateau. This plain slopes toward the southwest part of the survey area where it is dissected by numerous deep canyons, all of which drain into McElmo Creek. The Dolores River, which drains northwestward along the northeast boundary of the survey area, has carved a 2,000-foot deep canyon which lies below the general level of the adjacent plain. A relatively small area at the eastern end of the survey area is drained by the Mancos River.

Altitudes within the survey area range from about 4,840 feet along the western end of McElmo Canyon to 8,824 feet on Menefee Peak near the eastern boundary. The greater part of the survey area, comprising most of the Dolores Plateau, lies between 6,000 and 7,200 feet in altitude.

Adjacent to the soil survey area, the most prominent topographic features are the rugged La Plata Mountains to the east, and the Sleeping Ute Mountain to the south.

Geology

Geologic formations within the survey area range from Triassic to Recent in age. They consist of sedimentary rocks of Mesozoic age, a few small bodies of igneous intrusive rock of Tertiary age, and unconsolidated surficial deposits of Quaternary (Pleistocene and Recent) age.

The most extensive bedrock formation is the Dakota Sandstone, which underlies much of the Dolores Plateau. Dakota Sandstone is exposed throughout much of the Dolores Plateau, extending from the northwest to southeast across the survey area. The formations, which are older than the Dakota Sandstone, consist of a series of sandstone and shale beds. These formations, including the Morrison and Burro Canyons, are exposed along the Dolores River Canyon, along the numerous canyons draining southwestward from the Dolores Plateau, and over a sizeable region in the southwestern part of the survey area. These formations also appear along the canyons carved by the Dolores River. The Mancos Shale Formation and the overlying three formations comprising the Mesaverde Group overlie the Dakota

Sandstone and occur mainly in the southeastern part of the survey area (Wanek, 1959).

The most extensive Quaternary deposit in the survey area consists of a light red material, silty and sandy in texture, which mantles the uplands and mesas throughout the Dolores Plateau. The material is primarily wind-deposited, although some has been reworked by water and intermixed with local slope alluvium. Sandy and gravelly alluvium of Pleistocene age mantles terraces and high-lying erosional surfaces along the major stream valleys. Alluvial deposits of Recent age occur in the flood plains of most streams. Talus and landslide deposits occur on some of the steeper slopes along the canyons.

Natural Resources

Soil, water, oil, natural gas, carbon dioxide, and timber are the major natural resources of the survey area. Of these, soil is the most widely used. Water from the nearby mountains is stored and used to irrigate alfalfa, small grains, and orchards.

Oil and natural gas reserves have played a small but important role in the growth of the area. The first oil was found in 1911 near Battle Rock in McElmo Canyon. Since that time, small deposits of natural gas and oil have been located around the area. Carbon dioxide, a natural gas found deep under the western part of the survey, has been used for many years for industrial uses and for the production of "dry ice." In the 1980's, a large project was begun to transport vast quantities of carbon dioxide to western Texas for use in revitalizing depleting oil wells. Many new wells and pipelines were constructed. A 36-inch pipeline now supplies this natural product to the revitalized oil fields of western Texas.

Timber harvested from along the rim of the Dolores River Canyon and north of Mancos provided resources for many small and several large sawmills in the early 1900's. The town of McPhee (now under McPhee Reservoir) was home to the New Mexico Lumber Company sawmill that produced millions of board feet of lumber from 1924 to 1948 when the mill and most of the town were consumed in a major fire.

Climate

Prepared by the Natural Resources Conservation Service Water and Climate Center, Portland, Oregon.

Climate data came from climate stations at Cortez, Mesa Verde National Park, and Northdale (Dove Creek), Colorado.

Thunderstorm days, relative humidity, percent sunshine, and wind information were estimated from First Order station, Grand Junction, Colorado.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Cortez, Mesa Verde N.P. and Northdale (Dove Creek) in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, at Cortez the average temperature is 28.3 degrees F and the average daily minimum temperature is 14.7 degrees. The lowest temperature on record, which occurred at Cortez on February 8, 1933, was -31 degrees. In summer, at Cortez, the average temperature is 68.3 degrees and the average daily maximum temperature is 85.4 degrees. The highest temperature, which occurred at Cortez on July 13, 1971, was 101 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation at Cortez is about 13.3 inches. Of this, about 4.4 inches, or 33 percent, usually falls in June through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 1.96 inches at Cortez on September 22, 1941. Thunderstorms occur on about 35 days each year, and most occur in July and August.

The average seasonal snowfall at Cortez is 31.1 inches. The greatest snow depth at any one time during the period of record was 21 inches, recorded on December 21, 1967. On an average, 26 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 14.0 inches recorded on December 19, 1951.

The average relative humidity in mid-afternoon is about 36 percent. Humidity is higher at night, and the average at dawn is about 60 percent. The sun shines 79 percent of the time in summer and 62 percent in winter. The prevailing wind is from the west. Average wind speed is highest, 10 miles per hour, in April, May and June.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the

survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile.

After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil

scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts or variations in the intensity of mapping or in the extent of the soils in the survey areas. Soil maps from the Cortez Soil Survey have been joined with the following adjacent areas:

- La Plata County Area, Colorado

- Animas-Dolores Area, Colorado

- San Miguel Area, Colorado

- San Juan Area, Utah, Central Part

Soil maps do not join with the following adjacent area:

- Navajo Indian Reservation-San Juan County, Utah

- San Juan Area, Utah

Soil maps will join the Ute Mountain Area, Colorado and New Mexico when that survey is completed. Field work is currently in progress.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Soil Descriptions

Soils on flood plains, stream terraces and alluvial fans

This group consists of two map units. It makes up about 6 percent of the survey area. The soils in this group are nearly level to gently sloping. The vegetation in areas not cultivated is mainly shrubs, grasses, and forbs.

The soils in this group are very deep and somewhat excessively drained to somewhat poorly drained. They formed in alluvium derived dominantly from mixed sources.

Most areas of this group are used for pasture, cropland, and livestock grazing. A few areas are used for wildlife habitat and homesite development.

1. Mikim-Mikett

Setting

Location in survey area: South central part of area
Position on landscape: Alluvial fans, drainageways, and valleys

Slope range: Nearly level to gently sloping
Parent material: Alluvium from sandstone and shale
Native plant community: Sagebrush and grasses
Elevation: 6,000 to 6,400 feet
Annual air temperature: 50 to 52 degrees F
Annual precipitation: 11 to 13 inches
Frost-free period: 120 to 135 days

Composition

This unit occurs in 3 percent of the survey area
 Mikim soils: 40 percent of unit
 Mikett soils: 25 percent of unit
 Minor components: 35 percent of unit

Other soils of minor extent
 Sideshow soils on alluvial fans
 Zyme soils on knobs
 Barx soils on hills

Characteristics of the Mikim soil

Position on landscape: Alluvial fans and valleys
Parent material: Alluvium from sandstone and shale
Depth class: Very deep
Drainage class: Well drained
Surface layer: brown loam
Substratum: stratified fine sandy loam to clay loam

Characteristics of the Mikett soil

Position on landscape: Drainageways and alluvial fans
Parent material: Alluvium from sandstone and shale
Depth class: Very deep

Drainage class: Somewhat poorly drained
Surface layer: light brownish gray clay loam
Substratum: light brownish gray clay loam

Major Current Uses

Cropland and livestock grazing

General Management Factors

Rangeland: Mikett—Salinity, water table
Cropland: Mikett—Salinity, water table
Building site: Mikett—Water table

2. Lillings-Ramper-Fluents

Setting

Location in survey area: Southern part of area
Position on landscape: Alluvial fans and drainageways
Slope range: Nearly level to gently sloping
Parent material: Alluvium from mixed sources
Native plant community: Greasewood, sagebrush, and grasses
Elevation: 5,000 to 7,400 feet
Annual air temperature: 46 to 56 degrees F
Annual precipitation: 8 to 16 inches
Frost-free period: 100 to 160 days

Composition

This unit occurs in 3 percent of the survey area
 Lillings soils: 35 percent of unit
 Ramper soils: 35 percent of unit
 Fluents soils: 15 percent of unit
 Minor components: 15 percent of unit
 Other soils of minor extent
 Wetherill soils on hills
 Romberg soils on hills
 Mikim soils on alluvial fans

Characteristics of the Lillings soil

Position on landscape: Alluvial fans, terraces, and drainageways
Parent material: Alluvium from shale
Depth class: Very deep
Drainage class: Well drained
Surface layer: pale brown silty clay loam
Substratum: light brownish gray silty clay loam and silt loam

Characteristics of the Ramper soil

Position on landscape: Alluvial fans and drainageways
Parent material: Alluvium from sandstone and shale

Depth class: Very deep
Drainage class: Well drained
Surface layer: dark yellowish brown loam
Substratum: brown stratified sandy loam to clay loam

Characteristics of the Fluents

Position on landscape: Flood plains
Parent material: Alluvium from mixed sources
Depth class: Very deep
Drainage class: Somewhat excessively drained
Surface layer: dark brown fine sandy loam
Substratum: light yellowish brown stratified loamy sand to very gravelly sand

Major Current Uses

Livestock grazing and cropland

General Management Factors

Rangeland: Lillings—Salinity
Cropland: Lillings—Salinity
Building site: Lillings—Flooding, Ramper—Flooding, Fluents—Flooding

Soils on hills and mesas

This group consists of five map units. It makes up about 53 percent of the survey area. The soils in this group are nearly level to moderately steep. The vegetation in areas not cultivated is mainly shrubs, grasses, and forbs with areas of pinyon/juniper woodlands. At higher elevations, scattered ponderosa pine occur.

The soils in this group are very deep to very shallow and somewhat excessively drained to well drained. They formed in eolian and reworked eolian material, residuum, and slope alluvium derived dominantly from sedimentary rocks.

Most areas of this group are used for irrigated and nonirrigated cropland, livestock grazing, and pasture. A few are used for wildlife habitat, timber production, and homesite development.

3. Mack-Farb

Setting

Location in survey area: Southwest part of area
Position on landscape: Mesas, terraces, and escarpments
Slope range: Nearly level to rolling
Parent material: Eolian material and residuum from sandstone
Native plant community: Desert grasses and shrubs
Elevation: 5,000 to 5,700 feet

Annual air temperature: 52 to 56 degrees F

Annual precipitation: 8 to 10 inches

Frost-free period: 135 to 160 days

Composition

This unit occurs in 2 percent of the survey area

Mack soils: 35 percent of unit

Farb soils: 35 percent of unit

Minor components: 30 percent of unit

Other soils of minor extent

Rock outcrop on escarpments

Claysprings soils on hills

Recapture soils on mesas

Characteristics of the Mack soil

Position on landscape: Mesas and terraces

Parent material: Eolian material from sandstone

Depth class: Very deep

Drainage class: Well drained

Surface layer: yellowish red fine sandy loam

Subsoil: light reddish brown sandy clay loam

Characteristics of the Farb soil

Position on landscape: Mesas and escarpments

Parent material: Residuum from sandstone

Depth class: Very shallow and shallow

Drainage class: Excessively drained

Surface layer: strong brown sandy loam

Substratum: light brown sandy loam

Bedrock: sandstone at 5 to 20 inches

Major current uses: Livestock grazing

General Management Factors

Rangeland: Low annual production

Cropland: Low annual precipitation

Building site: Farb—Depth to bedrock

4. Barx-Gapmesa-Rizno

Setting

Location in survey area: Southwest and south central part of area

Position on landscape: Mesas

Slope range: Gently sloping to rolling

Parent material: Eolian material from sandstone

Native plant community: Juniper, sagebrush, and grasses

Elevation: 5,400 to 6,200 feet

Annual air temperature: 50 to 52 degrees F

Annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

This unit occurs in 5 percent of the survey area

Barx soils: 20 percent of unit

Gapmesa soils: 20 percent of unit

Rizno soils: 20 percent of unit

Minor components: 40 percent of unit

Other soils of minor extent

Sharps, dry soils on hills and mesas

Romberg soils in canyons

Crosscan soils in canyons

Rock outcrop on mesas and escarpments

Characteristics of the Barx soil

Position on landscape: Mesas

Parent material: Eolian material from sandstone

Depth class: Very deep

Drainage class: Well drained

Surface layer: brown very fine sandy loam

Subsoil: yellowish red sandy clay loam

Characteristics of the Gapmesa soil

Position on landscape: Mesas

Parent material: Eolian material from sandstone

Depth class: Moderately deep

Drainage class: Well drained

Surface layer: brown very fine sandy loam

Subsoil: yellowish red loam

Bedrock: sandstone at 20 to 40 inches

Characteristics of the Rizno soil

Position on landscape: Mesas

Parent material: Eolian material and residuum from sandstone

Depth class: Shallow and very shallow

Drainage class: Well drained

Surface layer: reddish brown very fine sandy loam

Substratum: reddish brown loam

Bedrock: sandstone at 6 to 20 inches

Major Current Use

Livestock grazing

General Management Factors

Rangeland: Low annual production

Cropland: Low annual precipitation

Building site: Depth to bedrock

5. Wetherill-Pulpit-Gladel

Setting

Location in survey area: Throughout most of the survey area

Position on landscape: Mesas and hills
Slope range: Nearly level to rolling
Parent material: Eolian material from sandstone
Native plant community: Pinyon, juniper, sagebrush, and grasses
Elevation: 6,200 to 7,500 feet
Annual air temperature: 46 to 50 degrees F
Annual precipitation: 13 to 16 inches
Frost-free period: 100 to 120 days

Composition

This unit occurs in 37 percent of the survey area
 Wetherill soils: 45 percent of unit
 Pulpit soils: 15 percent of unit
 Gladel soils: 10 percent of unit
 Minor components: 30 percent of unit

Other soils of minor extent
 Sharps soils on hills
 Ackmen soils in drainageways
 Cahona soils on mesas and hills
 Pogo soils in drainageways

Characteristics of the Wetherill soil

Position on landscape: Mesas and hills
Parent material: Eolian material from sandstone
Depth class: Very deep
Drainage class: Well drained
Surface layer: yellowish red loam
Subsoil: yellowish red loam and clay loam and light reddish brown loam

Characteristics of the Pulpit soil

Position on landscape: Mesas and hills
Parent material: Eolian material from sandstone
Depth class: Moderately deep
Drainage class: Well drained
Surface layer: reddish brown loam
Subsoil: reddish brown loam and clay loam
Bedrock: sandstone at 20 to 40 inches

Characteristics of the Gladel soil

Position on landscape: Mesas and hills
Parent material: Eolian material and residuum from sandstone
Depth class: Shallow
Drainage class: Well drained
Surface layer: light reddish brown flaggy fine sandy loam
Subsoil: pinkish gray flaggy fine sandy loam
Bedrock: sandstone at 12 to 20 inches

Major Current Uses

Irrigated and dry cropland, livestock grazing (fig. 2)

General Management Factors

Rangeland: Limited annual production
Cropland: Limited annual precipitation
Building site: Depth to bedrock

6. Granath-Ilex-Ormiston

Setting

Location in survey area: Along northeast boundary of area
Position on landscape: Hills
Slope range: Undulating to hilly
Parent material: Eolian material and residuum from sandstone and shale
Native plant community: Ponderosa pine, Gambel's oak, and grasses
Elevation: 7,100 to 8,500 feet
Annual air temperature: 43 to 47 degrees F
Annual precipitation: 15 to 20 inches
Frost-free period: Less than 100 days

Composition

This unit occurs in 7 percent of the survey area
 Granath soils: 45 percent of unit
 Ilex soils: 15 percent of unit
 Ormiston soils: 10 percent of unit
 Minor components: 30 percent of unit

Other soils of minor extent
 Pramiss soils on hills
 Fivepine soils on hills
 Herm soils on hills
 Ricot soils on mesas

Characteristics of the Granath soil

Position on landscape: Hills
Parent material: Eolian material from sandstone
Depth class: Very deep
Drainage class: Well drained
Surface layer: grayish brown loam
Subsoil: light reddish brown clay loam

Characteristics of the Ilex soil

Position on landscape: Hills
Parent material: Eolian material from sandstone, over residuum from shale



Figure 2.—Harvesting winter wheat in an area of Wetherill loam, 3 to 6 percent slopes.

Depth class: Very deep
Drainage class: Well drained
Surface layer: reddish brown loam
Subsoil: yellowish red clay loam
Substratum: brownish yellow clay

Characteristics of the Ormiston soil

Position on landscape: Hills
Parent material: Eolian material and colluvium from mixed sources
Depth class: Deep
Drainage class: Well drained
Surface layer: dark brown extremely stony loam
Subsoil: reddish brown very stony clay loam
Substratum: pinkish white stony clay loam
Bedrock: sandstone at 40 to 60 inches

Major Current Uses

Livestock grazing and cropland

General Management Factors

Rangeland: Woody overstory
Cropland: Short growing season
Building site: Depth to bedrock

7. Morefield-Arabrab-Longburn

Setting

Location in survey area: Southeast part of area
Position on landscape: Mesas
Slope range: Nearly level to moderately steep
Parent material: Eolian material and residuum from sandstone
Native plant community: Pinyon, juniper, and grasses
Elevation: 6,800 to 7,800 feet
Annual air temperature: 47 to 50 degrees F
Annual precipitation: 16 to 19 inches
Frost-free period: 130 to 150 days

Composition

This unit occurs in 2 percent of the survey area
 Morefield soils: 25 percent of unit
 Arabrab soils: 15 percent of unit
 Longburn soils: 15 percent of unit
 Minor components: 45 percent of unit

Other soils of minor extent
 Rock outcrop on escarpments
 Stephouse soils on mesas
 Roubideau soils on mesas
 Wauquie soils in canyons

Characteristics of the Morefield soil

Position on landscape: Mesas
Parent material: Eolian material from sandstone
Depth class: Very deep
Drainage class: Well drained
Surface layer: brown loam
Subsoil: reddish brown clay loam

Characteristics of the Arabrab soil

Position on landscape: Mesas
Parent material: Eolian material and residuum from sandstone
Depth class: Shallow and very shallow
Drainage class: Well drained
Surface layer: brown sandy loam
Subsoil: brown clay loam
Bedrock: sandstone at 6 to 20 inches

Characteristics of the Longburn soil

Position on landscape: Mesas
Parent material: Residuum and reworked eolian material from sandstone
Depth class: Shallow and very shallow
Drainage class: Well drained
Surface layer: brown cobbly fine sandy loam
Subsoil: brown very cobbly clay loam
Bedrock: sandstone at 6 to 20 inches

Major Current Use

Mesa Verde National Park

General Management Factors

Rangeland: Woody overstory
Cropland: Depth to bedrock
Building site: Depth to bedrock

Rock outcrop and soils in canyons, on hills and mountains

This group consists of six map units. It makes up about 41 percent of the survey area. The soils in this group are nearly level to extremely steep. The native vegetation is mainly shrubs, grasses, forbs, and areas of pinyon, juniper, ponderosa pine, and Douglas fir.

The soils in this group are very deep to very shallow and well drained. They formed in colluvium, residuum, and alluvium derived dominantly from sedimentary rocks.

Most areas of this group are used for wildlife habitat and wood production. A few areas are used for livestock grazing and homesite development.

8. Typic Torriorthents-Claysprings-Uzacol**Setting**

Location in survey area: Southwest part of area
Position on landscape: Hills, canyons, and alluvial fans

Slope range: Undulating to very steep
Parent material: Residuum and slope alluvium from sandstone and shale
Native plant community: Desert grasses and shrubs
Elevation: 5,000 to 5,700 feet
Annual air temperature: 52 to 56 degrees F
Annual precipitation: 8 to 10 inches
Frost-free period: 135 to 160 days

Composition

This unit occurs in 5 percent of the survey area
 Typic Torriorthents: 35 percent of unit
 Claysprings soils: 35 percent of unit
 Uzacol soils: 5 percent of unit
 Minor components: 25 percent of unit

Other soils of minor extent

Rock outcrop on escarpments and canyons
 Zwicker soils on hills
 Farb soils on mesas
 Mack soils on mesas
 Recapture soils on mesas
 Battlerock soils on mesas

Characteristics of the Typic Torriorthents

Position on landscape: Hills and canyons
Parent material: Colluvium and residuum from sandstone and shale
Depth class: Very shallow to very deep
Drainage class: Well drained
Surface layer: pale brown extremely stony sandy loam
Substratum: grayish brown extremely gravelly clay loam
Bedrock: mudstone and shale at 6 to more than 60 inches

Characteristics of the Claysprings soil

Position on landscape: Hills and canyons
Parent material: Residuum from shale
Depth class: Very shallow and shallow
Drainage class: Well drained
Surface layer: pink very stony clay loam
Substratum: reddish gray clay
Bedrock: shale at 6 to 20 inches

Characteristics of the Uzacol soil

Position on landscape: Hills
Parent material: Slope alluvium over residuum from shale
Depth class: Deep
Drainage class: Well drained
Surface layer: light brown clay loam
Subsoil: light brown clay
Substratum: pink clay
Bedrock: shale at 40 to 60 inches

Major Current Use

Livestock grazing

General Management Factors

Rangeland: Low annual production
Cropland: Slope, depth to bedrock
Building site: Slope, depth to bedrock

9. Romberg-Crosscan-Rock Outcrop

Setting

Location in survey area: Western part of area
Position on landscape: Canyons
Slope range: Rolling to very steep
Parent material: Residuum, colluvium, and alluvium from sandstone and shale
Native plant community: Juniper, pinyon, and grasses
Elevation: 5,400 to 6,800 feet
Annual air temperature: 50 to 52 degrees F
Annual precipitation: 10 to 14 inches
Frost-free period: 120 to 135 days

Composition

This unit occurs in 16 percent of the survey area
 Romberg soils: 40 percent of unit
 Crosscan soils: 35 percent of unit
 Rock Outcrop: 15 percent of unit
 Minor components: 10 percent of unit
 Other soils of minor extent
 Badlands soils on hills
 Mikim soils on alluvial fans
 Barx soils on mesas

Characteristics of the Romberg soil

Position on landscape: Canyons
Parent material: Colluvium and alluvium from sandstone and shale
Depth class: Very deep
Drainage class: Well drained
Surface layer: dark brown very stony loam
Subsoil: brown very stony clay loam

Characteristics of the Crosscan soil

Position on landscape: Canyons
Parent material: Residuum and colluvium from sandstone and shale
Depth class: Shallow and very shallow
Drainage class: Well drained
Surface layer: dark brown very bouldery sandy clay loam
Substratum: light brown very gravelly clay loam
Bedrock: shale at 6 to 20 inches

Characteristics of the Rock Outcrop

Position on landscape: Canyons
Parent material: Sandstone

Major Current Uses

Livestock grazing and wildlife habitat

General Management Factors

Rangeland: Slope, low annual production
Cropland: Slope, depth to bedrock
Building site: Slope, depth to bedrock

10. Sideshow-Zigzag

Setting

Location in survey area: Central to southeast part of area
Position on landscape: Hills, knobs, alluvial fans, and ridges
Slope range: Nearly level to very steep
Parent material: Alluvium and residuum from shale
Native plant community: Sagebrush, pinyon, and juniper
Elevation: 6,200 to 7,400 feet
Annual air temperature: 46 to 57 degrees F

Annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

This unit occurs in 6 percent of the survey area

Sideshow soils: 55 percent of unit

Zigzag soils: 30 percent of unit

Minor components: 15 percent of unit

Other soils of minor extent

Sideslide soils in drainageways

Sharps soils on hills

Gladel soils on hills

Characteristics of the Sideshow soil

Position on landscape: Alluvial fans and hills

Parent material: Alluvium from shale

Depth class: Very deep

Drainage class: Well drained

Surface layer: brown silty clay loam

Subsoil: brown clay

Characteristics of the Zigzag soil

Position on landscape: Hills, ridges, and knobs

Parent material: Residuum from shale

Depth class: Shallow and very shallow

Drainage class: Well drained

Surface layer: light brownish gray very channery clay loam

Substratum: light brownish gray clay

Bedrock: shale at 6 to 20 inches

Major Current Use

Livestock grazing

Major Management Factors

Rangeland: Low annual production

Cropland: Depth to bedrock, slope

Building site: Depth to bedrock, slope

11. Wauquie-Dolcan-Rock Outcrop

Setting

Location in survey area: Northeastern edge and southeast part of the area

Position on landscape: Canyons

Slope range: Rolling to very steep

Parent material: Slope alluvium, colluvium, and residuum from sandstone and shale

Native plant community: Pinyon, juniper, shrubs, and grasses

Elevation: 6,200 to 7,400 feet

Annual air temperature: 46 to 50 degrees F

Annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

This unit occurs in 6 percent of the survey area

Wauquie soils: 30 percent of unit

Dolcan soils: 20 percent of unit

Rock Outcrop: 10 percent of unit

Minor components: 40 percent of unit

Other soils of minor extent

Sheek soils in canyons

Archuleta soils in canyons

Badlands on hills

Tragmon soils in canyons

Prater soils in canyons

Characteristics of the Wauquie soil

Position on landscape: Canyons

Parent material: Colluvium and alluvium from sandstone and shale

Depth class: Very deep

Drainage class: Well drained

Surface layer: brown stony fine sandy loam

Subsoil: brown very stony loam

Characteristics of the Dolcan soil

Position on landscape: Canyons

Parent material: Colluvium and residuum from shale

Depth class: Shallow and very shallow

Drainage class: Well drained

Surface layer: brown extremely cobbly fine sandy loam

Substratum: brown cobbly clay loam

Bedrock: shale at 6 to 20 inches

Characteristics of the Rock Outcrop

Position on landscape: Canyons

Parent material: Sandstone

Major Current Use

Wildlife habitat

General Management Factors

Rangeland: Slope

Cropland: Slope, depth to bedrock

Building site: Slope, depth to bedrock

12. Sheek-Archuleta-Pramiss

Setting

Location in survey area: Northeast to east edge of area

Position on landscape: Canyons and hills

Slope range: Rolling to very steep

Parent material: Colluvium, eolian material and residuum from sandstone and shale

Native plant community: Ponderosa pine, Gambel oak, and grasses

Elevation: 7,100 to 8,500 feet

Annual air temperature: 43 to 47 degrees F

Annual precipitation: 15 to 20 inches

Frost-free period: less than 100 days

Composition

This unit occurs in 6 percent of the survey area

Sheek soils: 35 percent of unit

Archuleta soils: 25 percent of unit

Pramiss soils: 20 percent of unit

Minor components: 20 percent of unit

Other soils of minor extent

Rock outcrop on escarpments and hills

Haplustalfs soils on hills

Hesperus soils in drainageways

Characteristics of the Sheek soil

Position on landscape: Canyons and hills

Parent material: Colluvium from sandstone and shale

Depth class: Very deep

Drainage class: Well drained

Surface layer: brown very stony sandy loam

Subsoil: brown very stony clay loam

Characteristics of the Archuleta soil

Position on landscape: Canyons and hills

Parent material: Residuum from sandstone and shale

Depth class: Shallow

Drainage class: Well drained

Surface layer: grayish brown very stony sandy loam

Substratum: light brownish gray stony clay loam

Bedrock: interbedded sandstone and shale at 10 to 20 inches

Characteristics of the Pramiss soil

Position on landscape: Hills

Parent material: Eolian material from sandstone over shale

Depth class: Moderately deep

Drainage class: Well drained

Surface layer: brown very stony loam

Subsoil: reddish brown clay

Bedrock: shale at 20 to 40 inches

Major current uses: Wildlife habitat and livestock grazing

General Management Factors

Rangeland: Slope

Cropland: Slope, depth to bedrock

Building site: Slope, depth to bedrock

13. Northrim-Prater-Sheek

Setting

Location in survey area: Southeast part of the survey area

Position on landscape: Hills and canyons

Slope range: Hilly to very steep

Parent material: Colluvium from sandstone and shale

Native plant community: Shrubs and grasses

Elevation: 6,800 to 8,500 feet

Annual air temperature: 43 to 50 degrees F

Annual precipitation: 15 to 20 inches

Frost-free period: less than 100 days

Composition

This unit occurs in 2 percent of the survey area

Northrim soils: 35 percent of unit

Prater soils: 35 percent of unit

Sheek soils: 15 percent of unit

Minor components: 15 percent of unit

Other soils of minor extent

Hesperus soils in drainageways

Tragmon soils on alluvial fans

Dolcan soils on hills

Characteristics of the Northrim soil

Position on landscape: Hills and canyons

Parent material: Colluvium from sandstone and shale

Depth class: Very deep

Drainage class: Well drained

Surface layer: brown cobbly loam

Subsoil: pale brown cobbly loam

Characteristics of the Prater soil

Position on landscape: Canyons

Parent material: Colluvium from shale and sandstone

Depth class: Very deep

Drainage class: Well drained

Surface layer: dark grayish brown loam

Subsoil: yellowish brown clay loam

Characteristics of the Sheek soil

Position on landscape: Hills and canyons

Parent material: Colluvium from sandstone and shale

Depth class: Very deep

Drainage class: Well drained

Surface layer: brown very stony sandy loam

Subsoil: brown very stony clay loam

Major Current Use

Mesa Verde National Park

General Management Factors

Rangeland: Woody overstory

Cropland: Slope

Building site: Slope

Broad Land Use Considerations

The major uses within this survey area are irrigated and non-irrigated cropland, livestock grazing, wildlife habitat and recreation. Some areas are being converted from agricultural uses to urban development.

Major areas of crop production are in general soil map units 2 and 5. These units are well suited to growing alfalfa, wheat, and pinto beans. Most areas of these units have very deep soils but the depth to bedrock and slope are the major limiting factors affecting the use of these units in some areas.

Most of the general soil map units are suitable for

use in livestock grazing. Units 9 and 11 are limited by steep slopes. Production of rangeland vegetation is limited in units 3 and 8 by the low precipitation and low available water capacity.

All general soil map units are suited for wildlife habitat. Units 5, 6, 7, 9, 10, 11, 12, and 13 are well suited to habitat for mule deer and elk. These areas provide food and cover for large numbers of these animals. Units 6, 11, 12 and 13 provide habitat for increasing numbers of wild turkeys. Units 1 and 2 provide habitat for a wide variety of species due to the diverse habitats that occur in these riparian areas.

General soil map units 7 and 13 and a large portion of unit 11 are used for wildlife habitat and recreation within the boundaries of Mesa Verde National Park. These areas are managed to preserve them in a natural and undisturbed condition.

Urban development is occurring in many of the general soil map units. Units 1, 2, 5, 6, and 10 have all had extensive areas converted from agricultural uses to homesite development. Major areas of change have been in the areas around the towns of Cortez, Dolores, and Mancos. In these areas rural domestic water systems provide water for household uses. Limitations for development include some areas where depth to bedrock limits foundations and can affect septic systems. Areas in units 6 and 10 have soils that have high shrink-swell potentials and slow permeability, which can adversely affect their use for urban development.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify

all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Wetherill loam, 3 to 6 percent slopes, is a phase of the Wetherill series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Romberg-Crosscan-Rock outcrop complex, 2 to 80 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous

areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Rizno-Littlenan-Bodry association, 3 to 50 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Soil Descriptions

1—Ackmen loam, 1 to 3 percent slopes

Setting

Landscape position: Draws, flood plains, and drainageways

Parent material: Kind—alluvium; source—mixed

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Ackmen soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 6 inches—dark brown loam

6 to 17 inches—dark yellowish brown silt loam

17 to 25 inches—dark yellowish brown loam

25 to 60 inches—dark grayish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: Rare

Runoff: Low

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Irak soils in draws and drainageways
- Sideshow soils on alluvial fans

Similar Inclusions

- Ramper soils on alluvial fans and flood plains

Major Uses

Livestock grazing and cropland

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Western wheatgrass, muttongrass, big sagebrush, bottlebrush, squirreltail

Potential annual production of air-dry vegetation: 800 pounds per acre

Cropland

Suitability: Good

Building Site Development

Suitability: Poor

Soil-related factors: Flooding

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.
- Some areas are severely gullied and are no longer subject to flooding.

2—Ackmen loam, 3 to 6 percent slopes

Setting

Landscape position: Draws, flood plains, and drainageways

Parent material: Kind—alluvium; source—mixed

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Ackmen soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 6 inches—dark brown loam
 6 to 17 inches—dark yellowish brown silt loam
 17 to 25 inches—dark yellowish brown loam
 25 to 60 inches—dark grayish brown clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: Rare
Runoff: Medium
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

- Irak soils in drainageways and draws
- Sideshow soils on alluvial fans

Similar Inclusions

- Ramper soils on alluvial fans and flood plains

Major Uses

Livestock grazing and cropland

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation in the potential plant community:

Western wheatgrass, muttongrass, big sagebrush, bottlebrush squirreltail

Potential annual production of air-dry vegetation: 800 pounds per acre

Cropland

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Flooding

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.

- Some areas are severely gullied and are no longer subject to flooding.

3—Arabrab loamy sand, 3 to 9 percent slopes**Setting**

Landscape position: Mesas

Parent material: Kind—eolian material and residuum; source—sandstone

Native plant community: Pinyon and juniper woodland

Elevation: 6,800 to 7,800 feet

Mean annual temperature: 47 to 50 degrees F

Mean annual precipitation: 16 to 19 inches

Frost-free period: 130 to 150 days

Composition

Arabrab soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 4 inches—brown loamy sand
 4 to 9 inches—strong brown loam
 9 to 13 inches—brown clay loam
 13 to 16 inches—brown clay loam
 16 inches—hard Cliffhouse Sandstone

Soil Properties

Depth class: Shallow and very shallow

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Severe

Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

- Longburn soils on mesas
- Roubideau soils on mesas
- Rock outcrop

Similar Inclusions

- Stephouse soils on mesas

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Pinyon, Utah juniper, mountain mahogany,
fendlerbush, Utah serviceberry, muttongrass

Potential annual production of air-dry vegetation: 700
pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

4—Arabrab-Longburn complex, 3 to 15 percent slopes

Setting

Landscape position: Mesas

Parent material: Kind—eolian material, residuum, and
colluvium; source—sandstone

Native plant community: Pinyon and juniper woodland

Elevation: 6,800 to 7,800 feet

Mean annual temperature: 47 to 50 degrees F

Mean annual precipitation: 16 to 19 inches

Frost-free period: 130 to 150 days

Composition

Arabrab soil and similar inclusions: 45 percent

Longburn soil and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Arabrab soil

Landscape position: Mesas

Slope range: 3 to 15 percent

Parent material: Kind—eolian material and residuum;
source—sandstone

Typical Profile

0 to 4 inches—brown loamy sand

4 to 9 inches—strong brown loam

9 to 13 inches—brown clay loam

13 to 16 inches—brown clay loam

16 inches—hard Cliffhouse Sandstone

Soil Properties

Depth class: Shallow and very shallow

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Severe

Shrink-swell potential: Low

Characteristics of the Longburn soil

Landscape position: Mesas

Slope range: 3 to 15 percent

Parent material: Kind—colluvium, reworked eolian
material and residuum; source—sandstone

Typical Profile

0 to 1 inch—brown cobbly fine sandy loam

1 to 4 inches—brown very cobbly fine sandy loam

4 to 17 inches—brown very cobbly clay loam

17 inches—hard Cliffhouse Sandstone

Soil Properties

Depth class: Shallow and very shallow

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Wetherill soils on mesas
- Roubideau soils on mesas
- Rock outcrop

Similar Inclusions

- Stephouse soils on mesas

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community on this unit: Pinyon, Utah juniper, mountain mahogany, Indian ricegrass, fendlerbush, muttongrass

Potential annual production of air-dry vegetation on the Arabrab soil: 700 pounds per acre

Potential annual production of air-dry vegetation on the Longburn soil: 600 pounds per acre

Soil-related factors: Depth, stones

Management considerations:

- Low available water capacity limits forage production.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth, stones, slope

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

5—Archuleta-Sanchez complex, 12 to 65 percent slopes

Setting

Landscape position: Hills and ridges

Parent material: Kind—colluvium, slope alluvium, and residuum; source—sandstone and shale

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,800 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 18 to 20 inches

Frost-free period: 80 to 100 days

Composition

Archuleta soil and similar inclusions: 45 percent

Sanchez soil and similar inclusions: 30 percent

Contrasting inclusions: 25 percent

Characteristics of the Archuleta soil

Landscape position: Hills and ridges

Slope range: 12 to 65 percent

Parent material: Kind—slope alluvium and residuum; source—sandstone and shale

Typical Profile

0 to 1 inch—slightly decomposed oak leaves and pine needles

1 to 5 inches—light brownish gray loam

5 to 13 inches—pale brown clay loam

13 inches—interbedded sandstone and shale

Soil Properties

Depth class: Shallow

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very low

Potential rooting depth: 10 to 20 inches

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Sanchez soil

Landscape position: Hills and ridges

Slope range: 12 to 45 percent

Parent material: Kind—colluvium and residuum; source—sandstone

Typical Profile

0 to 5 inches—pale brown stony sandy clay loam

5 to 11 inches—light brownish gray stony clay loam

11 to 15 inches—light brownish gray stony sandy clay loam

15 inches—hard sandstone

Soil Properties

Depth class: Shallow

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very low

Potential rooting depth: 11 to 20 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Sheek soils on hills
- Rock outcrop

Similar Inclusions

- Falconry soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Poor

Dominant vegetation in the potential plant community on this unit: Ponderosa pine, Gambel's oak, antelope bitterbrush, muttongrass, mountain mahogany, serviceberry, snowberry

Potential annual production of air-dry vegetation on the Archuleta soil: 1,200 pounds per acre

Potential annual production of air-dry vegetation on the Sanchez soil: 600 pounds per acre

Soil-related factors: Depth, slope

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

6—Argiustolls-Haplustalfs complex, 30 to 80 percent slopes**Setting**

Landscape position: Canyons

Parent material: Kind—colluvium and slope alluvium; source—sandstone and shale

Native plant community: Douglas fir with grasses and shrubs

Elevation: 6,900 to 8,500 feet

Mean annual temperature: 40 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Argiustolls and similar inclusions: 45 percent

Haplustalfs and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Argiustolls soil

Landscape position: Canyons

Slope range: 30 to 80 percent

Parent material: Kind—colluvium and slope alluvium; source—sandstone and shale

Typical Profile

0 to 1 inch—slightly decomposed leaves and pine needles

1 to 4 inches—very dark grayish brown extremely stony loam

4 to 13 inches—grayish brown and brown extremely stony clay loam

13 to 20 inches—yellowish brown very stony clay loam

20 to 37 inches—yellowish brown cobbly clay loam

37 to 50 inches—light gray cobbly clay

50 to 60 inches—light brownish gray clay

Soil Properties

Depth class: Moderately deep to very deep

Drainage class: Well drained

Permeability: Slow to moderate

Available water capacity: Very low to moderate

Potential rooting depth: 20 to more than 60 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Moderate

Characteristics of the Haplustalfs soil

Landscape position: Canyons

Slope range: 30 to 80 percent

Parent material: Kind—colluvium and slope alluvium; source—sandstone and shale

Typical Profile

0 to 5 inches—brown very stony loam

5 to 10 inches—very pale brown very stony clay loam

10 to 41 inches—pale brown and light yellowish brown very stony clay

41 to 60 inches—light yellowish brown very stony and extremely stony clay

Soil Properties

Depth class: Shallow to very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Very low to high

Potential rooting depth: 10 to more than 60 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Archuleta soils on hills
- Falconry soils on ridges, hills, and in canyons

Major Uses

Wildlife habitat and limited livestock grazing

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community on this unit: Douglas fir, serviceberry, Gambel's oak, elk sedge, prairie Junegrass, muttongrass, snowberry, mountain mahogany

Potential annual production of air-dry vegetation on the Argiustolls soil: 1,000 pounds per acre

Potential annual production of air-dry vegetation on the Haplustalfs soil: 900 pounds per acre

Soil-related factors: Slope, stones

Management considerations:

- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable

Soil-related factors: Stones, slope, depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope, permeability, shrink-swell

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

7—Argiustolls-Haplustalfs-Rock outcrop complex, 30 to 80 percent slopes

Setting

Landscape position: Canyons

Parent material: Kind—colluvium, residuum, and slope alluvium; source—sandstone and shale

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 6,900 to 8,500 feet

Mean annual temperature: 42 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Argiustolls and similar inclusions: 30 percent

Haplustalfs and similar inclusions: 30 percent

Rock outcrop and similar inclusions: 25 percent

Contrasting inclusions: 15 percent

Characteristics of the Argiustolls soil

Landscape position: Canyons

Slope range: 30 to 80 percent

Parent material: Kind—colluvium and slope alluvium; source—sandstone and shale

Typical Profile

0 to 1 inch—slightly decomposed leaves and pine needles

1 to 4 inches—very dark grayish brown extremely stony loam

4 to 13 inches—grayish brown and brown extremely stony clay loam

13 to 20 inches—yellowish brown very stony clay loam

20 to 37 inches—yellowish brown cobbly clay loam

37 to 50 inches—light gray cobbly clay

50 to 60 inches—light brownish gray clay

Soil Properties

Depth class: Moderately deep to very deep

Drainage class: Well drained

Permeability: Slow to moderate

Available water capacity: Very low to moderate

Potential rooting depth: 20 to more than 60 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Moderate

Characteristics of the Haplustalfs soil

Landscape position: Canyons

Slope range: 30 to 80 percent

Parent material: Kind—colluvium and slope alluvium; source—sandstone and shale

Typical Profile

0 to 5 inches—brown very stony loam

5 to 10 inches—very pale brown very stony clay loam

10 to 41 inches—pale brown and light yellowish brown very stony clay

41 to 60 inches—light yellowish brown very stony and extremely stony clay

Soil Properties

Depth class: Shallow to very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Very low to high

Potential rooting depth: 10 to more than 60 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Moderate

Characteristics of the Rock outcrop

Landscape position: Canyons

Slope range: 30 to 80 percent

Parent material: Kind—residuum; source—sandstone and shale

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions

- Archuleta soils on hills
- Falconry soils on hills

Major Uses

Wildlife habitat and limited livestock grazing

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community on this unit: Ponderosa pine, Gambel's oak, prairie Junegrass, muttongrass, snowberry, Utah serviceberry, mountain mahogany

Potential annual production of air-dry vegetation on the Argiustolls soil: 800 pounds per acre

Potential annual production of air-dry vegetation on the Haplustalfs soil: 700 pounds per acre

Soil-related factors: Slope, stones

Management considerations:

- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable

Soil-related factors: Stones, slope, depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope, shrink-swell

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

8—Barx loam, 3 to 6 percent slopes

Setting

Landscape position: Mesas and hills

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 5,400 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Barx soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

0 to 3 inches—brown loam
3 to 31 inches—reddish brown and yellowish red
sandy clay loam
31 to 60 inches—pinkish white sandy clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas**Contrasting Inclusions**

- Gapmesa soils on hills and mesas
- Rizno soils on mesas
- Rock outcrop

Similar Inclusions

- Recapture soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation in the potential plant community:

Galleta, big sagebrush, blue grama

Potential annual production of air-dry vegetation: 700 pounds per acre

Management considerations:

- Low annual precipitation limits forage production.

Cropland

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- Low annual precipitation limits cropping systems.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Good

9—Barx loam, 6 to 12 percent slopes**Setting**

Landscape position: Mesas and hills

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 5,400 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Barx soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Typical Profile

0 to 3 inches—brown loam
3 to 31 inches—reddish brown sandy clay loam
31 to 60 inches—pinkish white sandy clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas**Contrasting Inclusions**

- Gapmesa soils on hills and mesas
- Rizno soils on mesas
- Rock outcrop

Similar Inclusions

- Recapture soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation in the potential plant community:
Galleta, big sagebrush, blue grama, Indian ricegrass

Potential annual production of air-dry vegetation: 700 pounds per acre

Management considerations:

- Low annual precipitation limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.
- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.

10—Barx very fine sandy loam, 1 to 4 percent slopes

Setting

Landscape position: Mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 5,400 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Barx soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 3 inches—brown very fine sandy loam

3 to 9 inches—reddish brown fine sandy loam

9 to 36 inches—reddish brown and reddish yellow sandy clay loam

36 to 60 inches—pink sandy clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Low

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Gapmesa soils on hills and mesas
- Rizno soils on mesas
- Rock outcrop

Similar Inclusions

- Recapture soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:
Galleta, big sagebrush, blue grama, Indian ricegrass

Potential annual production of air-dry vegetation:
1,000 pounds per acre

Management considerations:

- Low annual precipitation limits forage production.

Cropland

Suitability: Good

Management considerations:

- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Good

11—Barx-Gapmesa complex, 2 to 6 percent slopes

Setting

Landscape position: Mesas and hills

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 5,400 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Barx soil and similar inclusions: 60 percent
Gapmesa soil and similar inclusions: 25 percent
Contrasting inclusions: 15 percent

Characteristics of the Barx soil

Landscape position: Mesas and hills
Slope range: 2 to 6 percent
Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 3 inches—brown loam
3 to 31 inches—reddish brown sandy clay loam
31 to 60 inches—pinkish white sandy clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Characteristics of the Gapmesa soil

Landscape position: Mesas and hills
Slope range: 2 to 6 percent
Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 2 inches—brown very fine sandy loam
2 to 21 inches—yellowish red gravelly very fine sandy loam
21 to 28 inches—light reddish brown gravelly fine sandy loam
28 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Rock outcrop
- Sharps, dry soils on hills and mesas

Similar Inclusions

- Rizno soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community on this unit: Big sagebrush, galleta, blue grama, Indian ricegrass

Potential annual production of air-dry vegetation on the Barx soil: 700 pounds per acre

Potential annual production of air-dry vegetation on the Gapmesa soil: 600 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low annual precipitation limits forage production.
- Low available water capacity limits forage production.

Cropland

Suitability: Fair

Soil-related factors: Slope, depth

Management considerations:

- Low available water capacity limits crop production.
- Depth to bedrock should be considered in making cuts and fills.
- Low annual precipitation limits cropping systems.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Depth

Management considerations:

- Depth to bedrock may limit excavations.

12—Battlerock clay loam, 0 to 6 percent slopes

Setting

Landscape position: Terraces, drainageways, and flood plains

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Desert shrubs and grasses

Elevation: 5,000 to 5,700 feet

Mean annual temperature: 52 to 56 degrees F

Mean annual precipitation: 8 to 10 inches

Frost-free period: 135 to 160 days

Composition

Battlerock soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 10 inches—brown clay loam

10 to 60 inches—yellowish brown and brown stratified clay loam to loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: Rare

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Recapture soils on mesas and alluvial fans
- Soils without stratification on hills

Similar Inclusions

- Yarts soils on terraces

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Alkali sacaton, western wheatgrass, fourwing saltbush, greasewood

Potential annual production of air-dry vegetation: 700 pounds per acre

Management considerations:

- Low annual precipitation limits forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- Low annual precipitation limits cropping systems.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Flooding

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.

13—Beje-Tragmon complex, 3 to 9 percent slopes

Setting

Landscape position: Mesas, hills, and ridges

Parent material: Kind—residuum, slope alluvium, and eolian material; source—sandstone

Native plant community: Gambel's oak woodland

Elevation: 8,000 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Beje soil and similar inclusions: 60 percent

Tragmon soil and similar inclusions: 20 percent

Contrasting inclusions: 20 percent

Characteristics of the Beje soil

Landscape position: Mesas, hills, and ridges

Slope range: 3 to 9 percent

Parent material: Kind—residuum and eolian material; source—sandstone

Typical Profile

0 to 2 inches—brown loam

2 to 14 inches—brown loam

14 inches—hard Cliffhouse Sandstone

Soil Properties

Depth class: Shallow

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very low

Potential rooting depth: 10 to 20 inches

Flooding: None
Runoff: High
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Characteristics of the Tragmon soil

Landscape position: Hills and mesas
Slope range: 3 to 9 percent
Parent material: Kind—slope alluvium; source—sandstone

Typical Profile

0 to 5 inches—brown sandy loam
 5 to 11 inches—brown loam
 11 to 40 inches—pale brown and yellowish brown loam
 40 to 60 inches—light yellowish brown loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Northrim soils on hills
- Sheek soils on hills
- Rock outcrop

Similar Inclusions

- Granath soils on mesas
- Falconry soils on hills

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation in the potential plant community on this unit: Gambel's oak, muttongrass, serviceberry, snowberry, mountain brome, prairie Junegrass, mountain mahogany
Potential annual production of air-dry vegetation on the Beje soil: 1,500 pounds per acre

Potential annual production of air-dry vegetation on the Tragmon soil: 2,000 pounds per acre
Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable
Soil-related factors: Depth

Building Site Development

Suitability: Poor
Soil-related factors: Depth

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.

14—Burnson loam, 1 to 15 percent slopes

Setting

Landscape position: Hills and mesas
Parent material: Kind—residuum, slope alluvium, and eolian material; source—sandstone and shale
Native plant community: Ponderosa pine and Gambel's oak woodland
Elevation: 7,100 to 8,500 feet
Mean annual temperature: 41 to 47 degrees F
Mean annual precipitation: 17 to 20 inches
Frost-free period: 80 to 100 days

Composition

Burnson soil and similar inclusions: 80 percent
 Contrasting inclusions: 20 percent

Typical Profile

0 to 1 inch—slightly decomposed leaves and pine needles
 1 to 4 inches—brown loam
 4 to 8 inches—brown clay loam
 8 to 29 inches—reddish brown and reddish gray sandy clay
 29 to 44 inches—reddish brown clay and brownish yellow sandy clay loam
 44 inches—hard Dakota Sandstone

Soil Properties

Depth class: Deep
Drainage class: Well drained
Permeability: Slow

Available water capacity: Moderate
Potential rooting depth: 40 to 60 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Detra soils on hills
- Falconry soils on hills

Similar Inclusions

- Herm soils on hills and structural benches

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Ponderosa pine, Gambel's oak, snowberry,
 Rocky Mountain juniper, Arizona fescue

Potential annual production of air-dry vegetation: 900
 pounds per acre

Soil-related factors: Depth

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock should be considered in making cuts and fills.
- The short growing season limits crop selection.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Slope, permeability, shrink-swell, depth

Management considerations:

- High shrink-swell potential should be considered in the design of structures.

- Depth to bedrock may limit excavations.
- The design of septic systems should consider the slow permeability of the soil.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

15—Burnson loam, dry, 1 to 15 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—residuum, slope alluvium, and eolian material; source—sandstone and shale

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 17 to 20 inches

Frost-free period: 80 to 100 days

Composition

Burnson soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 1 inch—slightly decomposed leaves and pine needles

1 to 4 inches—brown loam

4 to 8 inches—brown clay loam

8 to 29 inches—reddish brown and reddish gray sandy clay

29 to 44 inches—reddish brown clay and brownish yellow sandy clay loam

44 inches—hard Dakota Sandstone

Soil Properties

Depth class: Deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Moderate

Potential rooting depth: 40 to 60 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Rock outcrop
- Herm soils on hills

Similar Inclusions

- Granath soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation in the potential plant community:

Ponderosa pine, Gambel's oak, Rocky Mountain juniper, Arizona fescue, western wheatgrass

Potential annual production of air-dry vegetation: 900 pounds per acre

Soil-related factors: Depth

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Poor

Soil-related factors: Slope, depth

Management considerations:

- Depth to bedrock should be considered in making cuts and fills.
- The short growing season limits crop selection.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Slope, permeability, shrink-swell, depth

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The design of septic systems should consider the slow permeability of the soil.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

16—Burnson-Herm complex, 15 to 30 percent slopes**Setting**

Landscape position: Hills and structural benches

Parent material: Kind—residuum, eolian material, and slope alluvium; source—sandstone and shale

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 41 to 47 degrees F

Mean annual precipitation: 17 to 20 inches

Frost-free period: 80 to 100 days

Composition

Burnson soil and similar inclusions: 50 percent

Herm soil and similar inclusions: 30 percent

Contrasting inclusions: 20 percent

Characteristics of the Burnson soil

Landscape position: Hills and structural benches

Slope range: 15 to 30 percent

Parent material: Kind—residuum and eolian material; source—sandstone

Typical Profile

0 to 1 inch—slightly decomposed leaves and pine needles

1 to 4 inches—brown clay loam

4 to 8 inches—brown clay loam

8 to 29 inches—reddish brown and reddish gray sandy clay

29 to 44 inches—reddish brown clay and brownish yellow sandy clay loam

44 inches—hard Dakota Sandstone

Soil Properties

Depth class: Deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Moderate

Potential rooting depth: 40 to 60 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Herm soil

Landscape position: Hills

Slope range: 15 to 30 percent

Parent material: Kind—eolian material and slope alluvium; source—sandstone and shale

Typical Profile

0 to 6 inches—dark grayish brown loam

6 to 45 inches—dark brown to brown clay loam

45 to 60 inches—grayish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Detra soils on hills

Similar Inclusions

- Falconry soils on ridges and hills

Major Uses

Timber production, wildlife habitat, and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community on this unit: Ponderosa pine, Gambel's oak, Arizona fescue, snowberry, western wheatgrass

Potential annual production of air-dry vegetation on the Burnson soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Herm soil: 1,300 pounds per acre

Soil-related factors: Slope

Management considerations:

- Steep slopes limit livestock use to areas of less slope.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability, slope, depth

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

17—Cahona loam, 1 to 3 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Cahona soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 5 inches—reddish brown loam

5 to 25 inches—yellowish red clay loam

25 to 60 inches—pinkish white and pinkish gray loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Pulpit soils on hills
- Sharps soils on hills

Similar Inclusions

- Wetherill soils on hills

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:
Western wheatgrass, muttongrass, big sagebrush

Potential annual production of air-dry vegetation:
1,000 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Good

Management considerations:

- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.

18—Cahona loam, 3 to 6 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Cahona soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 5 inches—reddish brown loam

5 to 25 inches—yellowish red clay loam

25 to 60 inches—pinkish white and pinkish gray loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Pulpit soils on hills
- Sharps soils on hills

Similar Inclusions

- Wetherill soils on hills

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:
Western wheatgrass, muttongrass, big sagebrush

Potential annual production of air-dry vegetation:
1,000 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.
- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.

19—Cahona loam, 6 to 12 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Cahona soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Typical Profile

0 to 5 inches—reddish brown loam
5 to 25 inches—yellowish red clay loam
25 to 60 inches—pinkish white and pinkish gray loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Pulpit soils on hills
- Sharps soils on hills

Similar Inclusions

- Wetherill soils on hills

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation in the potential plant community:
Western wheatgrass, muttongrass, big sagebrush
Potential annual production of air-dry vegetation:
1,000 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Poor
Soil-related factors: Slope

Management considerations:

- Low annual precipitation limits cropping systems.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell, slope

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

20—Cahona-Pulpit complex, 3 to 9 percent slopes

Setting

Landscape position: Hills and mesas
Parent material: Kind—eolian material; source—sandstone
Native plant community: Sagebrush and grasses
Elevation: 6,200 to 7,400 feet
Mean annual temperature: 46 to 50 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 120 days

Composition

Cahona soil and similar inclusions: 50 percent
Pulpit soil and similar inclusions: 35 percent
Contrasting inclusions: 15 percent

Characteristics of the Cahona soil

Landscape position: Hills and mesas
Slope range: 3 to 9 percent
Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 5 inches—reddish brown loam
5 to 25 inches—yellowish red clay loam
25 to 60 inches—pinkish white and pinkish gray loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Characteristics of the Pulpit soil

Landscape position: Hills and mesas

Slope range: 3 to 9 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 10 inches—reddish brown loam

10 to 20 inches—reddish brown clay loam

20 to 30 inches—reddish brown loam

30 to 36 inches—pink fine sandy loam

36 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Gladel soils on hills and mesas

Similar Inclusions

- Wetherill soils on mesas and hills

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community on this unit: Western wheatgrass, muttongrass, big sagebrush

Potential annual production of air-dry vegetation on the Cahona soil: 1,000 pounds per acre

Potential annual production of air-dry vegetation on the Pulpit soil: 800 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low annual precipitation limits forage production.
- Moderate available water capacity limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Slope, depth

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.
- Depth to bedrock should be considered in making cuts and fills.
- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Fair

Soil-related factors: Depth, slope, shrink-swell

Management considerations:

- Depth to bedrock may limit excavations.
- Moderate shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

21—Cahona-Sharps-Wetherill complex, 2 to 6 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Cahona soil and similar inclusions: 35 percent

Sharps soil and similar inclusions: 30 percent

Wetherill soil and similar inclusions: 20 percent

Contrasting inclusions: 15 percent

Characteristics of the Cahona soil

Landscape position: Hills and mesas

Slope range: 2 to 6 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 5 inches—reddish brown loam

5 to 25 inches—yellowish red clay loam

25 to 60 inches—pinkish white and pinkish gray loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Characteristics of the Sharps soil

Landscape position: Hills and mesas

Slope range: 2 to 6 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 9 inches—light reddish brown loam

9 to 19 inches—reddish brown clay loam

19 to 30 inches—light reddish brown and pink loam

30 inches—shale and soft sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Wetherill soil

Landscape position: Hills and mesas

Slope range: 2 to 6 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 3 inches—yellowish red loam

3 to 7 inches—yellowish red loam

7 to 48 inches—yellowish red loam and clay loam

48 to 60 inches—light reddish brown loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Gladel soils on hills and mesas

Similar Inclusions

- Pulpit soils on hills and mesas

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community on this unit: Western wheatgrass, muttongrass, bottlebrush squirreltail, big sagebrush

Potential annual production of air-dry vegetation on the Cahona soil: 1,000 pounds per acre

Potential annual production of air-dry vegetation on the Sharps soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Wetherill soil: 1,200 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low annual precipitation limits forage production.
- Low available water capacity limits forage production.

Cropland

Suitability: Fair

Soil-related factors: Depth

Management considerations:

- Low annual precipitation limits cropping systems.
- Low available water capacity limits crop production.
- Depth to bedrock should be considered in making cuts and fills.

Building Site Development

Suitability: Fair

Soil-related factors: Depth, shrink-swell

Management considerations:

- Depth to bedrock may limit excavations.
- Moderate shrink-swell potential should be considered in the design of structures.

22—Claysprings very stony clay loam, 12 to 65 percent slopes

Setting

Landscape position: Ridges, knobs, hills, and canyons

Parent material: Kind—residuum; source—Morrison Shale

Native plant community: Desert shrubs and grasses

Elevation: 5,000 to 5,700 feet

Mean annual temperature: 52 to 56 degrees F

Mean annual precipitation: 8 to 10 inches

Frost-free period: 135 to 160 days

Composition

Claysprings soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 3 inches—pink very stony clay loam

3 to 9 inches—light reddish brown clay

9 to 18 inches—reddish gray clay

18 inches—soft Morrison Shale

Soil Properties

Depth class: Very shallow and shallow

Drainage class: Well drained

Permeability: Slow

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Badland
- Uzacol soils on hills
- Zwicker soils on hills

Similar Inclusions

- Soils that have fewer stones on surface

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Very poor

Dominant vegetation in the potential plant community:

Salina wildrye, shadscale, galleta, alkali sacaton

Potential annual production of air-dry vegetation: 350 pounds per acre

Soil-related factors: Slope, depth

Management considerations:

- Low annual precipitation limits forage production.
- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth, slope

Building Site Development

Suitability: Poor

Soil-related factors: Slope, depth, permeability, shrink-swell

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

23—Collide clay loam, 3 to 6 percent slopes

Setting

Landscape position: Terraces

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 7,000 to 7,600 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 15 to 17 inches

Frost-free period: 100 to 120 days

Composition

Collide soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 10 inches—dark grayish brown clay loam

10 to 29 inches—yellowish red clay loam
 29 to 60 inches—yellowish red to light reddish brown clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: High
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Ustorthents on hills and terrace escarpments
- Sideshow soils on alluvial fans

Similar Inclusions

- Purcella soils on terraces

Major Uses

Pasture and hayland

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation in the potential plant community:
 Western wheatgrass, big sagebrush,
 muttongrass
Potential annual production of air-dry vegetation:
 1,300 pounds per acre

Cropland

Suitability: Fair
Soil-related factors: Slope, permeability

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.
- Slow permeability should be considered in irrigation design.

Building Site Development

Suitability: Poor
Soil-related factors: Permeability, shrink-swell

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.

24—Collide clay loam, 6 to 12 percent slopes

Setting

Landscape position: Terraces and fans
Parent material: Kind—eolian material; source—sandstone
Native plant community: Sagebrush and grasses
Elevation: 7,000 to 7,600 feet
Mean annual temperature: 46 to 50 degrees F
Mean annual precipitation: 15 to 17 inches
Frost-free period: 100 to 120 days

Composition

Collide soil and similar inclusions: 90 percent
 Contrasting inclusions: 10 percent

Typical Profile

0 to 10 inches—dark grayish brown clay loam
 10 to 29 inches—yellowish red clay loam
 29 to 60 inches—yellowish red to light reddish brown clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Ustorthents on hills and escarpments
- Sideshow soils on alluvial fans

Similar Inclusions

- Purcella soils on terraces
- Collide cobbly substratum soils on terraces

Major Uses

Pasture and hayland

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation in the potential plant community:
 Western wheatgrass, big sagebrush,
 muttongrass

Potential annual production of air-dry vegetation:
1,300 pounds per acre

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Permeability, shrink-swell

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.

25—Collide complex, 0 to 2 percent slopes

Setting

Landscape position: Terraces

Parent material: Kind—eolian material and alluvium;
source—mixed

Native plant community: Sagebrush and grasses

Elevation: 7,000 to 7,600 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 15 to 17 inches

Frost-free period: 100 to 120 days

Composition

Collide and similar inclusions: 45 percent

Collide cobbly substratum and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Collide soil

Landscape position: Terraces

Slope range: 0 to 2 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 10 inches—dark grayish brown clay loam

10 to 29 inches—yellowish red clay loam

29 to 60 inches—yellowish red to light reddish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Collide cobbly substratum soil

Landscape position: Terraces

Slope range: 0 to 2 percent

Parent material: Kind—eolian material over alluvium;
source—mixed

Typical Profile

0 to 2 inches—reddish brown loam

2 to 8 inches—reddish brown silty clay loam

8 to 45 inches—reddish brown and yellowish red clay loam

45 to 60 inches—pink extremely cobbly sandy clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Moderate

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Ustorthents on hills and terrace escarpments
- Sideshow soils on alluvial fans

Similar Inclusions

- Purcella soils on terraces

Major Use

Cropland

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community on this unit: Western wheatgrass, big sagebrush, muttongrass

Potential annual production of air-dry vegetation on the Collide soil: 1,300 pounds per acre

Potential annual production of air-dry vegetation on the Collide cobbly substratum soil: 1,100 pounds per acre

Cropland

Suitability: Good

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.

26—Collide complex, 2 to 6 percent slopes

Setting

Landscape position: Terraces

Parent material: Kind—eolian material and alluvium; source—mixed

Native plant community: Sagebrush and grasses

Elevation: 7,000 to 7,600 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 15 to 17 inches

Frost-free period: 100 to 120 days

Composition

Collide clay loam soil and similar inclusions: 45 percent

Collide cobbly substratum soil and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Collide soil

Landscape position: Terraces

Slope range: 2 to 6 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 10 inches—dark grayish brown clay loam

10 to 29 inches—yellowish red clay loam

29 to 60 inches—yellowish red to light reddish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Collide cobbly substratum soil

Landscape position: Terraces

Slope range: 2 to 6 percent

Parent material: Kind—eolian material over alluvium; source—mixed

Typical Profile

0 to 2 inches—reddish brown loam

2 to 8 inches—reddish brown silty clay loam

8 to 45 inches—reddish brown to yellowish red clay loam

45 to 60 inches—pink extremely cobbly sandy clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Moderate

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Ustorthents on hills and escarpments
- Sideshow soils on alluvial fans

Similar Inclusions

- Purcella soils on terraces

Major Uses

Pasture and hayland

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:
Western wheatgrass, big sagebrush, muttongrass, rubber rabbitbrush

Potential annual production of air-dry vegetation on the Collide soil: 1,300 pounds per acre

Potential annual production of air-dry vegetation on the Collide cobbly substratum soil: 1,100 pounds per acre

Cropland

Suitability: Fair

Soil-related factors: Slope, permeability

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.
- Slow permeability should be considered in irrigation design.

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.

27—Dalmatian-Apmay-Schrader complex, 0 to 5 percent slopes

Setting

Landscape position: Flood plains

Parent material: Kind—alluvium; source—mixed

Native plant community: Riparian vegetation of grasses and sedges

Elevation: 7,000 to 7,200 feet

Mean annual temperature: 41 to 47 degrees F

Mean annual precipitation: 16 to 20 inches

Frost-free period: 80 to 100 days

Composition

Dalmatian soil and similar inclusions: 35 percent

Apmay soil and similar inclusions: 35 percent

Schrader soil and similar inclusions: 15 percent

Contrasting inclusions: 15 percent

Characteristics of the Dalmatian soil

Landscape position: Flood plains

Slope range: 0 to 5 percent

Parent material: Kind—alluvium; source—mixed

Typical Profile

0 to 2 inches—dark grayish brown loam

2 to 25 inches—dark grayish brown loam

25 to 39 inches—dark brown loam

39 to 49 inches—dark gray to dark grayish brown sandy clay loam

49 to 60 inches—dark gray gravelly sandy loam

Soil Properties

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderate

Available water capacity: High

Potential rooting depth: 36 to 60 inches

Flooding: Rare

Runoff: Low

Water table: 36 to 60 inches

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Apmay soil

Landscape position: Flood plains

Slope range: 0 to 5 percent

Parent material: Kind—alluvium; source—mixed

Typical Profile

0 to 4 inches—dark grayish brown loam

4 to 18 inches—dark grayish brown clay loam

18 to 22 inches—dark yellowish brown sandy loam

22 to 60 inches—brown extremely gravelly sandy loam or loamy sand

Soil Properties

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Moderately slow

Available water capacity: Moderate

Potential rooting depth: 12 to 36 inches

Flooding: Rare

Runoff: Medium

Water table: 12 to 36 inches

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Schrader soil

Landscape position: Flood plains

Slope range: 0 to 5 percent

Parent material: Kind—alluvium; source—mixed

Typical Profile

0 to 13 inches—dark grayish brown loam

13 to 17 inches—dark brown fine sandy loam

17 to 24 inches—brown sandy clay loam

24 to 60 inches—brown fine sandy loam

Soil Properties

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: Moderate
Potential rooting depth: 12 to 24 inches
Flooding: Occasional
Runoff: Low
Water table: 12 to 24 inches
Hazard of water erosion: Slight
Hazard of wind erosion: Slight
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Ustifluvents on flood plains
- Open water and riverwash material

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation in the potential plant community on this unit: Tufted hairgrass, mountain brome, elk sedge, Rocky Mountain iris, western yarrow, sedges, perennial grasses
Potential annual production of air-dry vegetation on the Dalmatian soil: 2,000 pounds per acre
Potential annual production of air-dry vegetation on the Apmay soil: 2,000 pounds per acre
Potential annual production of air-dry vegetation on the Schrader soil: 2,000 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Fair
Soil-related factors: Water table

Management considerations:

- The short growing season limits crop selection.
- A high water table limits crop selection.

Building Site Development

Suitability: Poor
Soil-related factors: Water table, flooding

Management considerations:

- The presence of a high water table seriously affects development.
- The hazard of flooding limits the suitability of this unit for use as a building site.

28—Dam

Setting

Landscape position: Drainageways, canyons, hills, and alluvial fans
Parent material: Kind—Mechanically reworked and compacted eolian material, outwash, alluvium, and slope alluvium; source—mixed
Elevation: 6,200 to 8,000 feet
Mean annual temperature: 46 to 47 degrees F
Mean annual precipitation: 13 to 20 inches
Frost-free period: 80 to 120 days

Composition

Earthen dams or earth filled dams covered with cobbles, stones, and boulders

29—Endoaquolls-Ustifluvents complex, 0 to 5 percent slopes

Setting

Landscape position: Flood plains
Parent material: Kind—alluvium; source—mixed
Native plant community: Riparian vegetation consisting of grasses, rushes, sedges, and shrubs
Elevation: 7,100 to 8,500 feet
Mean annual temperature: 43 to 47 degrees F
Mean annual precipitation: 18 to 20 inches
Frost-free period: 80 to 100 days

Composition

Endoaquolls and similar inclusions: 60 percent
 Ustifluvents and similar inclusions: 25 percent
 Contrasting inclusions: 15 percent

Characteristics of the Endoaquolls

Landscape position: Flood plains
Slope range: 0 to 5 percent
Parent material: Kind—alluvium; source—mixed

Typical Profile

0 to 4 inches—grayish brown loam

4 to 28 inches—brown fine sandy loam and loam
 28 to 60 inches—dark yellowish brown extremely
 cobbly sand

Soil Properties

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate to rapid
Available water capacity: Low
Potential rooting depth: 12 to 60 inches or more
Flooding: Frequent
Runoff: Negligible to medium
Water table: 12 to 24 inches
Hazard of water erosion: Slight
Hazard of wind erosion: Slight
Shrink-swell potential: Low

Characteristics of the Ustifluvents

Landscape position: Flood plains
Slope range: 0 to 5 percent
Parent material: Kind—alluvium; source—mixed

Typical Profile

0 to 6 inches—reddish brown loam
 6 to 17 inches—yellowish red and reddish gray
 stratified loam to fine sandy loam
 17 to 24 inches—reddish brown and light reddish
 brown stratified sandy loam to loam
 24 to 30 inches—reddish gray and light reddish
 brown stratified loam to fine sandy loam
 30 to 60 inches—stratified sand, gravel, and cobbles

Soil Properties

Depth class: Very deep
Drainage class: Moderately well or well drained
Permeability: Moderate
Available water capacity: Low
Potential rooting depth: 36 to 60 inches
Flooding: Occasional
Runoff: Low
Water table: 40 to 60 inches
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Open water and riverwash areas
- Dalmatian soils on flood plains
- Apmay soils on flood plains

Major Uses

Livestock grazing and recreation

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation in the potential plant community on this unit: Narrowleaf cottonwood, thinleaf alder, willow, blue spruce, tufted hairgrass, rushes, sedges
Potential annual production of air-dry vegetation on the Endoaquolls: 2,000 pounds per acre
Potential annual production of air-dry vegetation on the Ustifluvents: 1,000 pounds per acre
Soil-related factors: Water table

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Unsuitable
Soil-related factors: Water table, flooding

Building Site Development

Suitability: Poor
Soil-related factors: Flooding, water table

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.
- The presence of a high water table seriously affects development.

30—Falconry gravelly fine sandy loam, 3 to 25 percent slopes

Setting

Landscape position: Hills, canyons, and ridges
Parent material: Kind—slope alluvium and residuum; source—sandstone
Native plant community: Ponderosa pine and Gambel's oak woodland
Elevation: 7,100 to 8,500 feet
Mean annual temperature: 43 to 47 degrees F
Mean annual precipitation: 15 to 20 inches
Frost-free period: 80 to 100 days

Composition

Falconry soil and similar inclusions: 80 percent
 Contrasting inclusions: 20 percent

Typical Profile

0 to 1 inch—slightly decomposed leaves and pine needles

- 1 to 5 inches—very dark gray gravelly fine sandy loam
 5 to 14 inches—grayish brown gravelly sandy loam
 14 inches—hard Dakota Sandstone

Soil Properties

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate>
Available water capacity: Very low
Potential rooting depth: 10 to 20 inches
Flooding: None
Runoff: High
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Nortez soils on hills and ridges
- Rock outcrop
- Ormiston soils on hills and mesas

Similar Inclusions

- Fivepine soils on mesas and hills

Major Uses

Wildlife habitat and stock grazing

Major Management Factors

Rangeland

Suitability: Fair
Dominant vegetation in the potential plant community:
 Ponderosa pine, Gambel's oak, muttongrass,
 mountain muhly
Potential annual production of air-dry vegetation: 650
 pounds per acre
Soil-related factors: Depth, slope

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable
Soil-related factors: Depth, slope

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The presence of shallow bedrock may adversely affect septic systems.

31—Farb-Rock outcrop complex, 3 to 12 percent slopes

Setting

Landscape position: Mesas, escarpments, and canyons

Parent material: Kind—residuum and colluvium;
 source—sandstone

Native plant community: Desert shrubs and grasses

Elevation: 5,000 to 5,700 feet

Mean annual temperature: 52 to 56 degrees F

Mean annual precipitation: 8 to 10 inches

Frost-free period: 135 to 160 days

Composition

Farb soil and similar inclusions: 55 percent

Rock outcrop and similar inclusions: 30 percent

Contrasting inclusions: 15 percent

Characteristics of the Farb soil

Landscape position: Mesas, escarpments, and canyons

Slope range: 3 to 12 percent

Parent material: Kind—residuum and colluvium;
 source—sandstone

Typical Profile

0 to 3 inches—strong brown sandy loam

3 to 13 inches—light brown sandy loam

13 to 16 inches—pink sandy loam

16 inches—hard Dakota Sandstone

Soil Properties

Depth class: Very shallow and shallow

Drainage class: Excessively drained

Permeability: Moderately rapid

Available water capacity: Very low

Potential rooting depth: 5 to 20 inches

Flooding: None

Runoff: Low

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Rock outcrop

Landscape position: Mesas, escarpments, and canyons

Slope range: 3 to 12 percent

Parent material: Kind—residuum; source—sandstone

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions

- Mack soils on mesas and terraces
- Recapture soils on mesas

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community on this unit: Indian ricegrass, New Mexico feathergrass, galleta, shadscale, Mormon tea

Potential annual production of air-dry vegetation on the Farb soil: 400 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.
- Low annual precipitation limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope, permeability

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

- The design of septic systems should consider the rapid permeability of the soil.

32—Fardraw loam, 3 to 15 percent slopes

Setting

Landscape position: Structural benches and mesas

Parent material: Kind—outwash; source—mixed

Native plant community: Gambel's oak woodland

Elevation: 8,000 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 17 to 20 inches

Frost-free period: 80 to 100 days

Composition

Fardraw soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 8 inches—very dark gray loam

8 to 11 inches—dark grayish brown loam

11 to 15 inches—brown very gravelly clay loam

15 to 51 inches—light brown very cobbly sandy clay

51 to 60 inches—reddish yellow very cobbly sandy clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Herm soils on hills
- Granath soils on mesas

Similar Inclusions

- Ricot soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:

Gambel's oak, snowberry, Arizona fescue

Potential annual production of air-dry vegetation:

2,200 pounds per acre

Soil-related factors: Slope, stones

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, stones

Building Site Development

Suitability: Fair

Soil-related factors: Slope, permeability

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

33—Fardraw very cobbly loam, 0 to 9 percent slopes

Setting

Landscape position: Structural benches and mesas

Parent material: Kind—outwash; source—mixed

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 17 to 20 inches

Frost-free period: 80 to 100 days

Composition

Fardraw soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 9 inches—brown very cobbly loam

9 to 13 inches—brown very cobbly clay loam

13 to 60 inches—brown and strong brown very cobbly clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Slight

Hazard of wind erosion: Slight

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Norte soils on hills
- Rock outcrop

Similar Inclusions

- Ricot soils on mesas
- Ormiston soils on hills and mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Ponderosa pine, Gambel's oak, Arizona fescue, mountain muhly, Parry oatgrass

Potential annual production of air-dry vegetation: 900 pounds per acre

Soil-related factors: Stones

Management considerations:

- Surface stones limit equipment use.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Stones

Building Site Development

Suitability: Fair

Soil-related factors: Permeability, stones

Management considerations:

- The design of septic systems should consider the slow permeability of the soil.

34—Fardraw very cobbly loam, 9 to 25 percent slopes

Setting

Landscape position: Structural benches and mesas

Parent material: Kind—outwash; source—mixed

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 17 to 20 inches

Frost-free period: 80 to 100 days

Composition

Fardraw soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 9 inches—brown very cobbly loam

9 to 13 inches—brown very cobbly clay loam

13 to 60 inches—brown and strong brown very cobbly clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Slight

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Nortez soils on hills
- Ricot soils on mesas
- Granath soils on mesas

Similar Inclusions

- Ormiston soils on hills and mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Ponderosa pine, Gambel's oak, Arizona fescue, mountain muhly, Parry oatgrass

Potential annual production of air-dry vegetation: 900 pounds per acre

Soil-related factors: Slope, stones

Management considerations:

- Low available water capacity limits forage production.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, stones

Building Site Development

Suitability: Fair

Soil-related factors: Slope, permeability, stones

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

35—Fardraw-Granath complex, 3 to 12 percent slopes

Setting

Landscape position: Structural benches, mesas, and hills

Parent material: Kind—Outwash and eolian material; source—mixed

Native plant community: Scattered ponderosa pine with grasses and shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 17 to 20 inches

Frost-free period: 80 to 100 days

Composition

Fardraw soil and similar inclusions: 50 percent

Granath soil and similar inclusions: 35 percent

Contrasting inclusions: 15 percent

Characteristics of the Fardraw soil

Landscape position: Structural benches and mesas

Slope range: 3 to 12 percent

Parent material: Kind—Outwash material; source—mixed

Typical Profile

0 to 9 inches—brown very cobbly loam

9 to 13 inches—brown very cobbly clay loam

13 to 60 inches—brown and strong brown very cobbly clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Slight

Shrink-swell potential: Moderate

Characteristics of the Granath soil

Landscape position: Hills

Slope range: 3 to 12 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 1 inch—slightly decomposed leaves and pine needles

1 to 14 inches—grayish brown and brown loam

14 to 60 inches—reddish brown or light reddish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Pramiss soils on hills
- Nortez soils on hills

Similar Inclusions

- Ormiston soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community on the Fardraw soil: Gambel's oak, mountain muhly, Parry oatgrass, ponderosa pine, Arizona fescue

Dominant vegetation in the potential plant community on the Granath soil: Western wheatgrass, Arizona fescue, mountain muhly, snowberry, Gambel's oak

Potential annual production of air-dry vegetation on the Fardraw soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Granath soil: 1,400 pounds per acre

Soil-related factors: Stones

Management considerations:

- Surface stones limit equipment use.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, stones

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, stones, permeability

Management considerations:

- Surface stones limit equipment use.
- Moderate shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.

36—Fivepine-Nortez complex, 0 to 15 percent slopes

Setting

Landscape position: Hills

Parent material: Kind—residuum, slope alluvium and eolian material; source—sandstone

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 41 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Fivepine soil and similar inclusions: 60 percent

Nortez soil and similar inclusions: 25 percent

Contrasting inclusions: 15 percent

Characteristics of the Fivepine soil

Landscape position: Hills

Slope range: 0 to 15 percent

Parent material: Kind—residuum and slope alluvium; source—sandstone

Typical Profile

0 to 3 inches—reddish brown flaggy loam

3 to 12 inches—reddish brown flaggy clay loam
 12 to 15 inches—yellowish red flaggy clay
 15 inches—hard Dakota Sandstone

Soil Properties

Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
Available water capacity: Very low
Potential rooting depth: 10 to 20 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Characteristics of the Nortez soil

Landscape position: Hills
Slope range: 0 to 15 percent
Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 3 inches—brown loam
 3 to 10 inches—reddish brown clay loam
 10 to 31 inches—yellowish red and reddish brown clay loam and clay
 31 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Rock outcrop
- Granath soils on hills
- Falconry soils on hills

Similar Inclusions

- Pramiss soils on hills

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair
Dominant vegetation in the potential plant community on this unit: Ponderosa pine, Gambel's oak, western wheatgrass, Arizona fescue, mountain muhly
Potential annual production of air-dry vegetation on the Fivepine soil: 800 pounds per acre
Potential annual production of air-dry vegetation on the Nortez soil: 1,200 pounds per acre
Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable
Soil-related factors: Depth, slope

Building Site Development

Suitability: Poor
Soil-related factors: Depth, permeability, slope, shrink-swell

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.
- High shrink-swell potential should be considered in the design of structures.

37—Fluvaquents-Haplustolls complex, 0 to 5 percent slopes

Setting

Landscape position: Flood plains and drainageways
Parent material: Kind—alluvium; source—mixed
Native plant community: Riparian vegetation consisting of grasses, sedges, rushes, and shrubs
Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Fluvaquents and similar inclusions: 55 percent

Haplustolls and similar inclusions: 30 percent

Contrasting inclusions: 15 percent

Characteristics of the Fluvaquents

Landscape position: Flood plains and drainageways

Slope range: 0 to 5 percent

Parent material: Kind—alluvium; source—mixed

Typical Profile

0 to 18 inches—pale brown to yellowish brown sandy loam

18 to 60 inches—yellowish brown loamy sand to very gravelly loamy sand

Soil Properties

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Moderately slow to moderately rapid

Available water capacity: Low

Potential rooting depth: 12 to 40 inches

Flooding: Frequent

Runoff: Low

Water table: 12 to 24 inches

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Haplustolls

Landscape position: Flood plains and drainageways

Slope range: 0 to 5 percent

Parent material: Kind—alluvium; source—mixed

Typical Profile

0 to 4 inches—grayish brown sandy loam

4 to 19 inches—dark grayish brown and brown loam

19 to 60 inches—brown and very pale brown gravelly loamy sand to extremely cobbly sand

Soil Properties

Depth class: Very deep

Drainage class: Well or moderately well drained

Permeability: Moderate to rapid

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: Rare

Runoff: Negligible to low

Water table: 60 inches or more

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Open water and riverwash areas

Similar Inclusions

- Umbarg soils on flood plains
- Payter soils on alluvial fans

Major Uses

Cropland and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community on this unit: Cottonwood, western wheatgrass, alkali sacaton, sedges, rushes

Potential annual production of air-dry vegetation on the Fluvaquents soil: 2,000 pounds per acre

Potential annual production of air-dry vegetation on the Haplustolls soil: 900 pounds per acre

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Water table

Management considerations:

- A high water table limits crop selection.

Building Site Development

Suitability: Poor

Soil-related factors: Water table, flooding

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.
- The presence of a high water table seriously affects development.

38—Fluvents-Fluvaquents complex, 0 to 3 percent slopes

Setting

Landscape position: Flood plains

Parent material: Kind—alluvium; source—mixed
Native plant community: Riparian vegetation
 consisting of grasses, sedges, rushes, and
 shrubs

Elevation: 5,000 to 7,400 feet

Mean annual temperature: 46 to 56 degrees F

Mean annual precipitation: 8 to 16 inches

Frost-free period: 100 to 160 days

Composition

Fluvents and similar inclusions: 55 percent

Fluvaquents and similar inclusions: 30 percent

Contrasting inclusions: 15 percent

Characteristics of the Fluvents

Landscape position: Flood plains

Slope range: 0 to 3 percent

Parent material: Kind—alluvium; source—mixed

Reference Profile

0 to 6 inches—dark brown fine sandy loam

6 to 60 inches—stratified light yellowish brown to
 yellowish brown very gravelly coarse sand to
 loamy sand

Soil Properties

Depth class: Very deep

Drainage class: Somewhat excessively drained

Permeability: Moderately slow to rapid

Available water capacity: Very low

Potential rooting depth: 60 inches or more

Water table: 60 inches or more

Flooding: Occasional

Runoff: Very low

Hazard of water erosion: Slight

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Characteristics of the Fluvaquents

Landscape position: Flood plains

Slope range: 0 to 3 percent

Parent material: Kind—alluvium; source—mixed

Reference Profile

0 to 8 inches—pale brown to yellowish brown sandy
 loam

8 to 60 inches—yellowish brown sandy loam to very
 gravelly loamy sand

Soil Properties

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Moderately slow to rapid

Available water capacity: Low

Potential rooting depth: 12 to 40 inches

Flooding: Frequent

Water table: 12 to 36 inches

Runoff: Low

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Ackmen soils in drainageways
- Ramper soils on flood plains

Similar Inclusions

- Lillings soils on flood plains

Major Uses

Wildlife habitat and livestock grazing

Major Management Factors

Rangeland

Suitability: Good

*Dominant vegetation in the potential plant community
 on this unit:* Cottonwood, willow, western
 wheatgrass, alkali sacaton, sedges, rushes

*Potential annual production of air-dry vegetation on
 the Fluvents soil:* 1,200 pounds per acre

*Potential annual production of air-dry vegetation on
 the Fluvaquents soil:* 2,000 pounds per acre

Management considerations:

- Low available water capacity limits forage
 production.

Cropland

Suitability: Unsuitable

Soil-related factors: Flooding, water table

Building Site Development

Suitability: Poor

Soil-related factors: Flooding, water table,
 permeability

Management considerations:

- The presence of a high water table seriously
 affects development.
- The hazard of flooding limits the suitability of this
 unit for use as a building site.
- The design of septic systems should consider the
 rapid permeability of the soil.

39—Fughes loam, 1 to 12 percent slopes**Setting**

Landscape position: Draws and drainageways

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Grasses with scattered shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 41 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Fughes soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 7 inches—dark brown loam

7 to 26 inches—brown clay loam

26 to 44 inches—brown clay

44 to 60 inches—strong brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas*Contrasting Inclusions*

- Granath soils on hills
- Ormiston soils on hills

Similar Inclusions

- Hesperus soils in drainageways
- Herm soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Good

Dominant vegetation in the potential plant community:

Arizona fescue, western wheatgrass, big sagebrush, slender wheatgrass

Potential annual production of air-dry vegetation:
1,800 pounds per acre

Cropland

Suitability: Poor

Soil-related factors: Permeability, slope

Management considerations:

- Slow infiltration should be considered in irrigation design.
- The steep slopes should be managed to prevent excessive erosion.
- The short growing season limits crop selection.

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability, slope

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The design of septic systems should consider the slow permeability of the soil.

40—Fughes-Herm complex, 5 to 25 percent slopes**Setting**

Landscape position: Hills and mesas

Parent material: Kind: slope alluvium and eolian material; source—shale and sandstone

Native plant community: Gambel's oak woodland

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 40 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Fughes soil and similar inclusions: 55 percent

Herm soil and similar inclusions: 35 percent

Contrasting inclusions: 10 percent

Characteristics of the Fughes soil

Landscape position: Hills and mesas

Slope range: 5 to 25 percent

Parent material: Kind—slope alluvium; source—shale and sandstone

Typical Profile

0 to 8 inches—dark brown loam

8 to 26 inches—brown clay loam

26 to 44 inches—brown clay

44 to 60 inches—strong brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Herm soil

Landscape position: Hills and mesas

Slope range: 5 to 25 percent

Parent material: Kind—Slope alluvium and eolian material; source—shale and sandstone

Typical Profile

0 to 6 inches—dark grayish brown loam

6 to 13 inches—dark brown clay loam

13 to 45 inches—grayish brown and brown clay loam

45 to 60 inches—grayish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Fardraw soils on mesas
- Goldbug soils on hills

Similar Inclusions

- Hesperus soils in drainageways

Major Use

Livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community on this unit: Gambel's oak, snowberry, Arizona fescue, mountain brome

Potential annual production of air-dry vegetation on the Fughes soil: 2,000 pounds per acre

Potential annual production of air-dry vegetation on the Herm soil: 1,800 pounds per acre

Soil-related factors: Slope

Management considerations:

- Brush control may be needed to maintain forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability, slope

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

41—Fughes-Sheek complex, 15 to 30 percent slopes

Setting

Landscape position: Hills

Parent material: Kind—slope alluvium and colluvium; source—sandstone and shale

Native plant community: Grasses with scattered ponderosa pine and shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 40 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Fughes soil and similar inclusions: 50 percent

Sheek and similar inclusions: 35 percent

Contrasting inclusions: 15 percent

Characteristics of the Fughes soil

Landscape position: Hills

Slope range: 15 to 30 percent

Parent material: Kind—slope alluvium and colluvium;
source—sandstone and shale

Typical Profile

0 to 7 inches—dark brown loam

7 to 26 inches—brown clay loam

26 to 44 inches—brown clay

44 to 60 inches—strong brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Sheek soil

Landscape position: Hills

Slope range: 15 to 30 percent

Parent material: Kind—slope alluvium and colluvium;
source—sandstone and shale

Typical Profile

0 to 2 inches—brown very cobbly clay loam

2 to 7 inches—brown gravelly clay loam

7 to 60 inches—brown very cobbly clay loam, cobbly
clay loam, and very cobbly loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Moderate

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Ormiston soils on hills
- Nortez soils on hills
- Rock outcrop

Similar Inclusions

- Tragmon soils on hills
- Herm soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community on the Fughes soil: big sagebrush, Gambel's oak, western wheatgrass, slender wheatgrass

Dominant vegetation in the potential plant community on the Sheek soil is: Ponderosa pine, Gambel's oak, Arizona fescue, mountain brome, muttongrass, serviceberry

Potential annual production of air-dry vegetation on the Fughes soil: 1,300 pounds per acre

Potential annual production of air-dry vegetation on the Sheek soil: 950 pounds per acre

Soil-related factors: Slope

Management considerations:

- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope

Building Site Development

Suitability: Poor

Soil-related factors: Slope, permeability, shrink-swell

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.
- High shrink-swell potential should be considered in the design of structures.

42—Gladel-Pulpit complex, 3 to 9 percent slopes

Setting

Landscape position: Mesas and hills

Parent material: Kind—residuum and eolian material;
source—sandstone

Native plant community: Grassy areas with pinyon and juniper woodland

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Gladel soil and similar inclusions: 45 percent
Pulpit soil and similar inclusions: 35 percent
Contrasting inclusions: 20 percent

Characteristics of the Gladel soil

Landscape position: Mesas and hills
Slope range: 3 to 9 percent
Parent material: Kind—residuum and eolian material;
source—sandstone

Typical Profile

0 to 5 inches—light reddish brown flaggy fine sandy loam
5 to 10 inches—light reddish brown flaggy fine sandy loam
10 to 15 inches—pinkish gray flaggy fine sandy loam
15 inches—hard Dakota Sandstone

Soil Properties

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Potential rooting depth: 12 to 20 inches
Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Characteristics of the Pulpit soil

Landscape position: Mesas and hills
Slope range: 3 to 9 percent
Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 10 inches—reddish brown loam
10 to 20 inches—reddish brown clay loam
20 to 30 inches—reddish brown loam
30 to 36 inches—pink fine sandy loam
36 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: High
Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Rock outcrop
- Dolcan soils on hills
- Wetherill soils on hills and mesas

Similar Inclusions

- Sharps soils on hills and mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community on the Gladel soil: Pinyon, juniper, Indian ricegrass, western wheatgrass, big sagebrush, antelope bitterbrush, mountain mahogany

Dominant vegetation in the potential plant community on the Pulpit soil: western wheatgrass, big sagebrush, antelope bitterbrush, needleandthread

Potential annual production of air-dry vegetation on the Gladel soil: 350 pounds per acre

Potential annual production of air-dry vegetation on the Pulpit soil: 800 pounds per acre

Management considerations:

- Surface stones limit equipment use.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth, slope

Building Site Development

Suitability: Poor

Soil-related factors: Depth

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.

43—Goldbug very stony fine sandy loam, 5 to 30 percent slopes

Setting

Landscape position: Hills and mountain slopes

Parent material: Kind—slope alluvium; source—sandstone and shale

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,400 to 7,600 feet

Mean annual temperature: 43 to 46 degrees F

Mean annual precipitation: 18 to 20 inches

Frost-free period: 80 to 100 days

Composition

Goldbug soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 1 inch—slightly decomposed leaves and pine needles

1 to 21 inches—pinkish gray very stony fine sandy loam

21 to 29 inches—light reddish brown stony sandy clay loam and light reddish brown stony fine sandy loam

29 to 60 inches—reddish brown stony clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Moderate

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Fivepine soils on hills
- Rock outcrop

Similar Inclusions

- Nortez soils on hills
- Granath soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Ponderosa pine, Gambel's oak, Arizona fescue, western wheatgrass, mountain muhly, juniper

Potential annual production of air-dry vegetation: 900 pounds per acre

Soil-related factors: Slope

Management considerations:

- Steep slopes limit livestock use to areas of less slope.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope

Building Site Development

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

44—Granath loam, 3 to 6 percent slopes

Setting

Landscape position: Mesas, alluvial fans, and hills

Parent material: Kind—eolian material; source—sandstone

Native plant community: Grasses and shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Granath soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 1 inch—slightly decomposed leaves

1 to 14 inches—grayish brown and brown loam

14 to 60 inches—reddish brown and light reddish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Nortez soils on hills
- Ormiston soils on hills and mesas

Similar Inclusions

- Ilex soils on hills

Major Uses

Livestock grazing and cropland

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:

Western wheatgrass, Arizona fescue, mountain
muhly, snowberry, big sagebrush

Potential annual production of air-dry vegetation:

1,400 pounds per acre

Cropland

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- The short growing season limits crop selection.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.

45—Granath loam, 6 to 12 percent slopes

Setting

Landscape position: Hills

Parent material: Kind—eolian material; source—
sandstone

Native plant community: Grasses and shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Granath soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 1 inch—slightly decomposed leaves

1 to 14 inches—grayish brown and brown loam

14 to 60 inches—reddish brown and light reddish
brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Nortez soils on hills
- Ormiston soils on hills

Similar Inclusions

- Ilex soils on hills

Major Uses

Livestock grazing and cropland

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:

Arizona fescue, western wheatgrass, mountain
muhly, big sagebrush, snowberry

Potential annual production of air-dry vegetation:

1,400 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.

- The short growing season limits crop selection.

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell, slope

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

46—Granath-Fughes complex, 0 to 15 percent slopes

Setting

Landscape position: Hills, mesas, and drainageways

Parent material: Kind—alluvium, slope alluvium, and eolian material; source—sandstone and shale

Native plant community: Grasses and shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 40 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Granath soil and similar inclusions: 50 percent

Fughes soil and similar inclusions: 35 percent

Contrasting inclusions: 15 percent

Characteristics of the Granath soil

Landscape position: Hills, mesas

Slope range: 0 to 15 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 10 inches—grayish brown loam

10 to 40 inches—grayish brown and brown clay loam

40 to 60 inches—reddish brown and light reddish brown sandy clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Fughes soil

Landscape position: Hills and drainageways

Slope range: 0 to 15 percent

Parent material: Kind—alluvium and slope alluvium; source—sandstone and shale

Typical Profile

0 to 7 inches—dark brown loam

7 to 26 inches—brown clay loam

26 to 44 inches—brown clay

44 to 60 inches—strong brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Ormiston soils on hills
- Fivepine soils on hills
- Nortez soils on hills

Similar Inclusions

- Ilex soils on hills

Major Uses

Timber production, livestock grazing, and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community on the Granath soil: Western wheatgrass, mountain muhly, Arizona fescue, snowberry, big sagebrush

Dominant vegetation in the potential plant community on the Fughes soil: Gambel's oak, western wheatgrass, Arizona fescue, big sagebrush

Potential annual production of air-dry vegetation on the Granath soil: 1,300 pounds per acre

Potential annual production of air-dry vegetation on the Fughes soil: 1,300 pounds per acre

Cropland*Suitability:* Poor*Soil-related factors:* Slope, permeability*Management considerations:*

- Slow infiltration should be considered in irrigation design.
- The short growing season limits crop selection.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development*Suitability:* Poor*Soil-related factors:* Shrink-swell, slope, permeability*Management considerations:*

- High shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

47—Granath-Nortez complex, 0 to 15 percent slopes***Setting****Landscape position:* Hills and mesas*Parent material:* Kind—eolian material; source—sandstone*Native plant community:* Grasses and shrubs with scattered pine grasslands*Elevation:* 7,100 to 8,500 feet*Mean annual temperature:* 40 to 47 degrees F*Mean annual precipitation:* 15 to 20 inches*Frost-free period:* 80 to 100 days***Composition***

Granath soil and similar inclusions: 55 percent

Nortez soil and similar inclusions: 30 percent

Contrasting inclusions: 15 percent

Characteristics of the Granath soil*Landscape position:* Hills and mesas*Slope range:* 0 to 15 percent*Parent material:* Kind—eolian material; source—sandstone***Typical Profile***

0 to 10 inches—grayish brown loam

10 to 40 inches—grayish brown and brown clay loam

40 to 60 inches—reddish brown and light reddish brown sandy clay loam

Soil Properties*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* High*Potential rooting depth:* 60 inches or more*Flooding:* None*Runoff:* High*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate*Shrink-swell potential:* Low***Characteristics of the Nortez soil****Landscape position:* Hills and mesas*Slope range:* 0 to 15 percent*Parent material:* Kind—eolian material; source—sandstone***Typical Profile***

0 to 3 inches—brown loam

3 to 10 inches—reddish brown clay loam

10 to 32 inches—yellowish red clay loam and clay

32 inches—hard Dakota Sandstone

Soil Properties*Depth class:* Moderately deep*Drainage class:* Well drained*Permeability:* Slow*Available water capacity:* Low*Potential rooting depth:* 20 to 40 inches*Flooding:* None*Runoff:* Very high*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate*Shrink-swell potential:* High***Included Areas****Contrasting Inclusions*

- Ormiston soils on hills
- Fivepine soils on hills and mesas

Similar Inclusions

- Fughes soils in drainageways

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland***Suitability:* Good

Dominant vegetation in the potential plant community on the Granath soil: Big sagebrush, Arizona fescue, western wheatgrass, mountain muhly, mountain brome

Dominant vegetation in the potential plant community on the Nortez soil: Ponderosa pine, Gambel's oak, big sagebrush, antelope bitterbrush, Arizona fescue, prairie junegrass, mountain muhly, Parry oatgrass

Potential annual production of air-dry vegetation on the Granath soil: 1,500 pounds per acre

Potential annual production of air-dry vegetation on the Nortez soil: 1,200 pounds per acre

Soil-related factors: Depth

Management considerations:

- Brush control may be needed to maintain forage production.
- Low available water capacity limits forage production.

Cropland

Suitability: Fair

Soil-related factors: Depth, permeability

Management considerations:

- Depth to bedrock should be considered in making cuts and fills.
- Low available water capacity limits crop production.
- Slow infiltration should be considered in irrigation design.
- The short growing season limits crop selection.

Building Site Development

Suitability: Poor

Soil-related factors: Depth, shrink-swell, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- The design of septic systems should consider the slow permeability of the soil.

48—Granath-Ormiston-Fivepine complex, 0 to 15 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—residuum, slope alluvium, and eolian material; source—sandstone

Native plant community: Ponderosa pine, shrubs, and grasses

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 41 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Granath soil and similar inclusions: 40 percent

Ormiston soil and similar inclusions: 25 percent

Fivepine soil and similar inclusions: 20 percent

Contrasting inclusions: 15 percent

Characteristics of the Granath soil

Landscape position: Hills and mesas

Slope range: 0 to 15 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 10 inches—grayish brown loam

10 to 40 inches—grayish brown and brown clay loam

40 to 60 inches—reddish brown and light reddish brown sandy clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Ormiston soil

Landscape position: Hills and mesas

Slope range: 0 to 15 percent

Parent material: Kind—slope alluvium, residuum, and reworked eolian material; source—sandstone

Typical Profile

0 to 7 inches—brown loam

7 to 32 inches—reddish brown stony and very stony clay loam

32 to 44 inches—pinkish white stony clay loam

44 inches—hard sandstone

Soil Properties

Depth class: Deep

Drainage class: Well drained

Permeability: Slow
Available water capacity: Low
Potential rooting depth: 40 to 60 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Characteristics of the Fivepine soil

Landscape position: Hills and mesas
Slope range: 0 to 15 percent
Parent material: Kind—residuum and slope alluvium;
 source—sandstone

Typical Profile

0 to 3 inches—reddish brown flaggy loam
 3 to 12 inches—reddish brown flaggy clay loam
 12 to 15 inches—yellowish red flaggy clay
 15 inches—hard sandstone

Soil Properties

Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
Available water capacity: Very low
Potential rooting depth: 10 to 20 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Norte soils on hills
- Fughes soils in drainageways

Similar Inclusions

- Falconry soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair
Dominant vegetation in the potential plant community on the Granath soil: Big sagebrush, Arizona fescue, western wheatgrass, mountain muhly, mountain brome, snowberry

Dominant vegetation in the potential plant community on the Ormiston soil: Arizona fescue, western wheatgrass, prairie Junegrass, mountain muhly, black sagebrush

Dominant vegetation in the potential plant community on the Fivepine soil: Ponderosa pine, Gambel's oak, western wheatgrass, mountain muhly, prairie Junegrass, serviceberry

Potential annual production of air-dry vegetation on the Granath soil: 1,500 pounds per acre

Potential annual production of air-dry vegetation on the Ormiston soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Fivepine soil: 800 pounds per acre

Soil-related factors: Depth, stones

Management considerations:

- Surface stones limit equipment use.
- Low available water capacity limits forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth, stones, slope

Building Site Development

Suitability: Poor

Soil-related factors: Depth, permeability, shrink-swell

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- The design of septic systems should consider the slow permeability of the soil.
- Moderate shrink-swell potential should be considered in the design of structures.

49—Herm loam, 6 to 25 percent slopes

Setting

Landscape position: Hills

Parent material: Kind—slope alluvium; source—shale

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,100 to 8,000 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 16 to 20 inches

Frost-free period: 90 to 100 days

Composition

Herm soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Typical Profile

2 to 0 inches—mat of needles and leaves
0 to 4 inches—dark reddish gray loam
4 to 7 inches—reddish gray loam
7 to 14 inches—reddish gray clay loam
14 to 34 inches—pale brown clay
34 to 60 inches—light brown clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Archuleta soils on hills
- Sanchez soils on hills
- Hesperus soils in drainageways

Similar Inclusions

- Fughes soils in drainageways

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair
Dominant vegetation in the potential plant community:
Ponderosa pine, Arizona fescue, prairie
Junegrass, mountain muhly, Gambel's oak
Potential annual production of air-dry vegetation:
1,300 pounds per acre
Soil-related factors: Slope
Management considerations:
• Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable
Soil-related factors: Slope

Building Site Development

Suitability: Fair
Soil-related factors: Shrink-swell, permeability, slope

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The design of septic systems should consider the slow permeability of the soil.

50—Herm very cobbly loam, 15 to 40 percent slopes

Setting

Landscape position: Hills
Parent material: Kind—slope alluvium; source—mixed
Native plant community: Ponderosa pine and Gambel's oak woodland
Elevation: 7,100 to 8,500 feet
Mean annual temperature: 43 to 47 degrees F
Mean annual precipitation: 15 to 20 inches
Frost-free period: 80 to 100 days

Composition

Herm soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Typical Profile

0 to 1 inch—brown very cobbly loam
1 to 10 inches—brown gravelly loam
10 to 60 inches—brown to pale brown clay and clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Slight
Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Haplustalfs in canyons
- Archuleta soils on hills

Similar Inclusions

- Granath soils on hills
- Fughes soils in drainageways

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation in the potential plant community:

Ponderosa pine, Gambel's oak, serviceberry,
mountain muhly, prairie Junegrass, Arizona
fescue

Potential annual production of air-dry vegetation:

1,300 pounds per acre

Soil-related factors: Slope

Management considerations:

- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope

Building Site Development

Suitability: Poor

Soil-related factors: Permeability, slope

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The design of septic systems should consider the slow permeability of the soil.

51—Herm-Pagoda complex, 0 to 15 percent slopes**Setting**

Landscape position: Hills and mesas

Parent material: Kind—slope alluvium; source—shale and sandstone

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 40 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Herm soil and similar inclusions: 50 percent

Pagoda soil and similar inclusions: 35 percent

Contrasting inclusions: 15 percent

Characteristics of the Herm soil

Landscape position: Hills and mesas

Slope range: 0 to 15 percent

Parent material: Kind—slope alluvium; source—shale and sandstone

Typical Profile

0 to 6 inches—dark grayish brown loam

6 to 13 inches—dark brown clay loam

13 to 45 inches—grayish brown and brown clay loam

45 to 60 inches—grayish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Pagoda soil

Landscape position: Hills and mesas

Slope range: 0 to 15 percent

Parent material: Kind—slope alluvium; source—shale

Typical Profile

0 to 1 inches—slightly decomposed leaves

1 to 5 inches—dark grayish brown loam

5 to 21 inches—brown clay loam

21 to 60 inches—grayish brown and light brownish gray clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Norte soils on hills
- Hesperus soils in drainageways

Similar Inclusions

- Fughes soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation the potential plant community on this unit: Ponderosa pine, Gambel's oak, western wheatgrass, Arizona fescue, pine dropseed, prairie junegrass, mountain muhly, snowberry, serviceberry

Potential annual production of air-dry vegetation on the Herm soil: 1,300 pounds per acre

Potential annual production of air-dry vegetation on the Pagoda soil: 1,200 pounds per acre

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.
- The short growing season limits crop selection.
- Slow infiltration should be considered in irrigation design.

Building Site Development

Suitability: Poor

Soil-related factors: Slope, permeability, shrink-swell

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

52—Hesperus loam, 0 to 3 percent slopes

Setting

Landscape position: Alluvial fans and drainageways

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Grasses and scattered shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Hesperus soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 11 inches—dark gray loam

11 to 44 inches—dark grayish brown to brown clay loam

44 to 60 inches—brown loam

Soil Properties

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Low

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Sheek soils on hills
- Fughes soils in drainageways
- Herm soils on hills

Similar Inclusions

- Tragmon soils on alluvial fans

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community: Arizona fescue, mountain muhly, Parry oatgrass, western wheatgrass, big sagebrush, snowberry

Potential annual production of air-dry vegetation: 1,800 pounds per acre

Cropland

Suitability: Fair

Management considerations:

- The short growing season limits crop selection.

Building Site Development

Suitability: Good

53—Hesperus loam, 3 to 6 percent slopes***Setting***

Landscape position: Alluvial fans, structural benches, and drainageways

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Grasses and scattered shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Hesperus soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 11 inches—dark gray loam

11 to 44 inches—dark grayish brown to brown clay loam

44 to 60 inches—brown loam

Soil Properties

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

- Sheek soils on hills
- Fughes soils in drainageways
- Herm soils on hills

Similar Inclusions

- Tragmon soils on alluvial fans

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Good

Dominant vegetation in the potential plant community:

Arizona fescue, mountain muhly, Parry oatgrass, western wheatgrass, big sagebrush, snowberry

Potential annual production of air-dry vegetation:

1,800 pounds per acre

Cropland

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- The short growing season limits crop selection.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Good

54—Hesperus loam, 6 to 12 percent slopes***Setting***

Landscape position: Alluvial fans, structural benches, and hills

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Gambel's oak and grasses

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Hesperus soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 11 inches—dark gray loam

11 to 44 inches—dark grayish brown to brown clay loam

44 to 60 inches—brown loam

Soil Properties

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None
Runoff: High
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Sheek soils on hills
- Fughes soils in drainageways
- Herm soils on hills

Similar Inclusions

- Tragmon soils on alluvial fans

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation the potential plant community:
 Arizona fescue, western wheatgrass, snowberry,
 Gambel's oak, serviceberry, nodding
 brome grass, elk sedge

Potential annual production of air-dry vegetation:
 2,000 pounds per acre

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- The short growing season limits crop selection.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.

55—Hesperus sandy loam, 3 to 12 percent slopes

Setting

Landscape position: Alluvial fans and drainageways

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Grasses and scattered shrubs

Elevation: 7,100 to 8,000 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 16 to 18 inches

Frost-free period: 80 to 100 days

Composition

Hesperus soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 11 inches—dark gray sandy loam

11 to 44 inches—dark grayish brown to brown clay loam

44 to 60 inches—brown clay loam or loam

Soil Properties

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Sheek soils on hills
- Northrim soils on hills

Similar Inclusions

- Hesperus soils with loamy surface textures
- Tragmon soils on alluvial fans

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation the potential plant community:
 Western wheatgrass, nodding brome grass,
 Arizona fescue, big sagebrush

Potential annual production of air-dry vegetation:
 1,800 pounds per acre

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- Short growing season limits crop selection

- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Good

56—Ilex loam, 3 to 12 percent slopes

Setting

Landscape position: Hills

Parent material: Kind—eolian material and residuum;
source—sandstone and shale

Native plant community: Ponderosa pine, Gambel's oak, grasses

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Ilex soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 2 inches—reddish brown loam

2 to 22 inches—reddish brown and yellowish red clay loam

22 to 37 inches—light yellowish brown clay

37 to 60 inches—very pale brown to brownish yellow clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Nortez soils on hills
- Hesperus soils in drainageways
- Ormiston soils on hills

Similar Inclusions

- Granath soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation the potential plant community:

Ponderosa pine, Gambel's oak, Arizona fescue, western wheatgrass, mountain muhly

Potential annual production of air-dry vegetation:

1,500 pounds per acre

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- The short growing season limits crop selection.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Fair

Soil-related factors: Slope, shrink-swell, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

57—Ilex loam, 12 to 25 percent slopes

Setting

Landscape position: Hills

Parent material: Kind—eolian material and residuum;
source—sandstone and shale

Native plant community: Ponderosa pine, Gambel's oak, grasses

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Ilex soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 2 inches—reddish brown loam
 2 to 22 inches—reddish brown and yellowish red clay loam
 22 to 37 inches—light yellowish brown clay
 37 to 60 inches—very pale brown to brownish yellow clay

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Included Areas*Contrasting Inclusions*

- Nortez soils on hills
- Hesperus soils in drainageways
- Ormiston soils on hills

Similar Inclusions

- Granath soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation the potential plant community:

Ponderosa pine, Gambel's oak, Arizona fescue, western wheatgrass, mountain muhly

Potential annual production of air-dry vegetation:

1,500 pounds per acre

Soil-related factors: Slope

Management considerations:

- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope

Building Site Development

Suitability: Poor

Soil-related factors: Slope, shrink-swell, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

58—Ilex-Granath complex, 2 to 6 percent slopes**Setting**

Landscape position: Hills

Parent material: Kind—eolian material and residuum; source—sandstone and shale

Native plant community: Grasses and scattered shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Ilex soil and similar inclusions: 60 percent

Granath soil and similar inclusions: 25 percent

Contrasting inclusions: 15 percent

Characteristics of the Ilex soil

Landscape position: Hills

Slope range: 2 to 6 percent

Parent material: Kind—eolian material and residuum; source—sandstone and shale

Typical Profile

0 to 2 inches—reddish brown loam
 2 to 22 inches—reddish brown and yellowish red clay loam
 22 to 37 inches—light yellowish brown clay
 37 to 60 inches—very pale brown to brownish yellow clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Granath soil

Landscape position: Hills

Slope range: 2 to 6 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 1 inch—slightly decomposed leaves

1 to 14 inches—grayish brown and brown loam

14 to 60 inches—reddish brown and light reddish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Nortez soils on hills
- Ormiston soils on hills

Similar Inclusions

- Hesperus and Fughes soils in drainageways

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation the potential plant community on the Ilex soil: Western wheatgrass, Arizona fescue, black sagebrush, Gambel's oak, prairie junegrass

Dominant vegetation the potential plant community on the Granath soil: Gambel's oak, western wheatgrass, big sagebrush, Arizona fescue, mountain muhly, snowberry

Potential annual production of air-dry vegetation on the Ilex soil: 1,100 pounds per acre

Potential annual production of air-dry vegetation on the Granath soil: 1,400 pounds per acre

Cropland

Suitability: Fair

Soil-related factors: Permeability

Management considerations:

- The short growing season limits crop selection.
- Slow permeability should be considered in irrigation design.

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.

59—Ilex-Granath complex, 6 to 12 percent slopes

Setting

Landscape position: Hills

Parent material: Kind—eolian material and residuum; source—sandstone and shale

Native plant community: Grasses and scattered shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Ilex soil and similar inclusions: 60 percent

Granath soil and similar inclusions: 25 percent

Contrasting inclusions: 15 percent

Characteristics of the Ilex soil

Landscape position: Hills

Slope range: 6 to 12 percent

Parent material: Kind—eolian material and residuum; source—sandstone and shale

Typical Profile

0 to 2 inches—reddish brown loam

2 to 22 inches—reddish brown and yellowish red clay loam

22 to 37 inches—light yellowish brown clay

37 to 60 inches—very pale brown to brownish yellow clay

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Characteristics of the Granath soil

Landscape position: Hills
Slope range: 6 to 12 percent
Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 1 inch—slightly decomposed leaves
 1 to 14 inches—grayish brown and brown loam
 14 to 60 inches—reddish brown and light reddish brown clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Norte soils on hills
- Ormiston soils on hills and mesas

Similar Inclusions

- Hesperus and Fughes soils in drainageways

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation the potential plant community on the Illex soil: Western wheatgrass, Gambel's oak,

black sagebrush, Arizona fescue, prairie junegrass

Dominant vegetation the potential plant community on the Granath soil: Gambel's oak, western wheatgrass, Arizona fescue, mountain muhly, snowberry, big sagebrush

Potential annual production of air-dry vegetation on the Illex soil: 1,100 pounds per acre

Potential annual production of air-dry vegetation on the Granath soil: 1,400 pounds per acre

Cropland

Suitability: Poor

Soil-related factors: Slope, permeability

Management considerations:

- Slow infiltration should be considered in irrigation design.
- The short growing season limits crop selection.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, slope, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The design of septic systems should consider the slow permeability of the soil.

60—Ilex-Pramiss-Falconry complex, 3 to 20 percent slopes

Setting

Landscape position: Hills and ridges

Parent material: Kind—reworked eolian material, slope alluvium, and residuum; source—sandstone and shale

Native plant community: Grasses, shrubs, and scattered ponderosa pine

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Illex soil and similar inclusions: 35 percent
 Pramiss soil and similar inclusions: 30 percent

Falconry soil and similar inclusions: 20 percent
 Contrasting inclusions: 15 percent

Characteristics of the Ilex soil

Landscape position: Hills
Slope range: 3 to 20 percent
Parent material: Kind—eolian material and residuum;
 source—sandstone and shale

Typical Profile

0 to 2 inches—reddish brown stony loam
 2 to 22 inches—reddish brown and yellowish red clay loam
 22 to 37 inches—light yellowish brown clay
 37 to 60 inches—very pale brown to brownish yellow clay

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Characteristics of the Pramiss soil

Landscape position: Hills and ridges
Slope range: 3 to 20 percent
Parent material: Kind—slope alluvium, residuum, and reworked eolian material; source—sandstone and shale

Typical Profile

0 to 3 inches—brown very stony loam
 3 to 8 inches—brown clay loam
 8 to 16 inches—reddish brown clay
 16 to 22 inches—light reddish brown clay
 22 to 31 inches—pink clay
 31 inches—soft sandstone and shale

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight
Shrink-swell potential: High

Characteristics of the Falconry soil

Landscape position: Hills and ridges
Slope range: 3 to 20 percent
Parent material: Kind—slope alluvium and residuum;
 source—sandstone

Typical Profile

0 to 1 inch—slightly decomposed leaves and pine needles
 1 to 5 inches—very dark gray gravelly fine sandy loam
 5 to 14 inches—grayish brown gravelly sandy loam
 14 inches—hard Dakota Sandstone

Soil Properties

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Potential rooting depth: 10 to 20 inches
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Rock outcrop
- Ormiston soils on hills

Similar Inclusions

- Nortez soils on hills
- Granath soils on hills

Major Uses

Wildlife habitat and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation the potential plant community on the Ilex soil: Western wheatgrass, big sagebrush, Arizona fescue, mountain muhly, snowberry

Dominant vegetation the potential plant community on the Pramiss soil: Ponderosa pine, Arizona fescue, prairie junegrass, western wheatgrass

Dominant vegetation the potential plant community on the Falconry soil: Gambel's oak, Ponderosa pine, mountain muhly, mountain mahogany

Potential annual production of air-dry vegetation on the Ilex soil: 1,500 pounds per acre

Potential annual production of air-dry vegetation on the Pramiss soil: 800 pounds per acre

Potential annual production of air-dry vegetation on the Falconry soil: 650 pounds per acre

Management considerations:

- Surface stones limit equipment use.
- Low available water capacity limits forage production.
- Past logging activities have significantly changed the potential plant community in some areas.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, depth, stones

Building Site Development

Suitability: Poor

Soil-related factors: Depth, shrink-swell, slope, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Low strength may limit load carrying capacity of the soil and should be considered in structure design.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

61—Ilex-Pramiss-Granath complex, 2 to 9 percent slopes

Setting

Landscape position: Hills and alluvial fans

Parent material: Kind—slope alluvium, residuum, colluvium, and eolian material; source—sandstone and shale

Native plant community: Gambel's oak and grasses

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Ilex soil and similar inclusions: 35 percent

Pramiss soil and similar inclusions: 30 percent

Granath soil and similar inclusions: 20 percent

Contrasting inclusions: 15 percent

Characteristics of the Ilex soil

Landscape position: Hills

Slope range: 2 to 9 percent

Parent material: Kind—eolian material and residuum; source—sandstone

Typical Profile

0 to 2 inches—reddish brown loam

2 to 22 inches—reddish brown and yellowish red clay loam

22 to 37 inches—light yellowish brown clay

37 to 60 inches—very pale brown to brownish yellow clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Pramiss soil

Landscape position: Hills

Slope range: 2 to 9 percent

Parent material: Kind—slope alluvium; source—sandstone and shale

Typical Profile

0 to 3 inches—brown loam

3 to 8 inches—brown clay loam

8 to 16 inches—reddish brown clay

16 to 22 inches—light reddish brown clay

22 to 31 inches—pink clay

31 inches—soft sandstone and shale

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Granath soil

Landscape position: Alluvial fans and hills

Slope range: 2 to 9 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 1 inch—slightly decomposed leaves

1 to 14 inches—grayish brown and brown loam

14 to 60—reddish brown and light reddish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: More than 60 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Ormiston soils on hills
- Falconry soils on hills

Similar Inclusions

- Nortez soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation the potential plant community on the Ilex and Pramiss soils are: Western wheatgrass, Gambel's oak, Arizona fescue, black sagebrush, prairie junegrass

Dominant vegetation the potential plant community on the Granath soil: Gambel's oak, big sagebrush, Arizona fescue, mountain muhly, snowberry

Potential annual production of air-dry vegetation on the Ilex soil: 1,100 pounds per acre

Potential annual production of air-dry vegetation on the Pramiss soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Granath soil: 1,400 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.

- Past logging activities have significantly changed the potential plant community in some areas.

Cropland

Suitability: Fair

Soil-related factors: Depth, permeability

Management considerations:

- Low available water capacity limits crop production.
- The short growing season limits crop selection.
- Depth to bedrock should be considered in making cuts and fills.
- Slow permeability should be considered in irrigation design.

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, slope, depth

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The design of septic systems should consider the slow permeability of the soil.

62—Irak loam, 0 to 3 percent slopes

Setting

Landscape position: Draws and drainageways

Parent material: Kind—alluvium; source—reworked eolian material

Native plant community: Grasses and sedges

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Irak soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 8 inches—reddish brown loam

8 to 60 inches—reddish brown loam

Soil Properties

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Moderate

Available water capacity: High

Potential rooting depth: 12 to 36 inches

Water table: 12 to 48 inches

Flooding: Rare

Runoff: Low

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Sideshow soils on alluvial fans
- Ackmen soils in drainageways

Similar Inclusions

- Mikett soils on alluvial fans and in drainageways

Major Uses

Livestock grazing and cropland

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation the potential plant community:

Alkali sacaton, western wheatgrass, inland saltgrass, sedges

Potential annual production of air-dry vegetation:

2,500 pounds per acre

Cropland

Suitability: Fair

Soil-related factors: Water table

Management considerations:

- A high water table limits crop selection.

Building Site Development

Suitability: Poor

Soil-related factors: Water table, flooding

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.
- The presence of a high water table seriously affects development.

63—Jemco-Detra-Beje complex, 1 to 15 percent slopes

Setting

Landscape position: Hills, mesas, and ridges

Parent material: Kind—residuum, slope alluvium, and eolian material; source—sandstone

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,800 to 8,500 feet

Mean annual temperature: 41 to 46 degrees F

Mean annual precipitation: 18 to 20 inches

Frost-free period: 80 to 100 days

Composition

Jemco soil and similar inclusions: 40 percent

Detra soil and similar inclusions: 30 percent

Beje soil and similar inclusions: 20 percent

Contrasting inclusions: 10 percent

Characteristics of the Jemco soil

Landscape position: Hills and mesas

Slope range: 1 to 15 percent

Parent material: Kind—eolian material and residuum; source—sandstone

Typical Profile

0 to 7 inches—brown silt loam

7 to 14 inches—light reddish brown loam

14 to 22 inches—brown loam

22 to 39 inches—reddish brown or yellowish red clay loam

39 inches—hard sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Moderate

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Detra soil

Landscape position: Hills and mesas

Slope range: 1 to 15 percent

Parent material: Kind—slope alluvium and eolian material over residuum; source—sandstone

Typical Profile

0 to 16 inches—dark brown loam

16 to 43 inches—brown loam

43 to 51 inches—reddish brown clay loam

51 to 57 inches—yellowish red sandy clay loam

57 inches—sandy shale

Soil Properties

Depth class: Deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 40 to 60 inches

Flooding: None

Runoff: High

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Beje soil

Landscape position: Hills, ridges, and mesas

Slope range: 1 to 15 percent

Parent material: Kind—residuum and slope alluvium;
source—sandstone

Typical Profile

0 to 2 inches—brown loam

2 to 14 inches—brown loam and clay loam

14 inches—hard sandstone

Soil Properties

Depth class: Shallow

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very low

Potential rooting depth: 10 to 20 inches

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Nortez soils on hills
- Granath soils on hills
- Hesperus soils in drainageways

Similar Inclusions

- Falconry soils on hills

Major Uses

Livestock grazing, wildlife habitat, and woodland

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation the potential plant community on this unit: Ponderosa pine, juniper, Gambel's oak, Arizona fescue, snowberry

Potential annual production of air-dry vegetation on the Jemco soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Detra soil: 1,400 pounds per acre

Potential annual production of air-dry vegetation on the Beje soil: 1,300 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth, slope

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

64—Lazear-Rock outcrop complex, 12 to 65 percent slopes

Setting

Landscape position: Mesas

Parent material: Kind—residuum; source—sandstone and shale

Native plant community: Pinyon and juniper woodland

Elevation: 7,600 to 7,800 feet

Mean annual temperature: 47 to 50 degrees F

Mean annual precipitation: 16 to 18 inches

Frost-free period: 110 to 120 days

Composition

Lazear soil and similar inclusions: 50 percent

Rock outcrop and similar inclusions: 30 percent

Contrasting inclusions: 20 percent

Characteristics of the Lazear soil

Landscape position: Mesas

Slope range: 12 to 40 percent

Parent material: Kind—residuum; source—sandstone

Typical Profile

0 to 5 inches—brown very stony loam

5 to 8 inches—light yellowish brown loam

8 to 15 inches—very pale brown loam

15 inches—hard sandstone

Soil Properties

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Potential rooting depth: 10 to 20 inches
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Slight
Shrink-swell potential: Low

Characteristics of the Rock outcrop

Landscape position: Mesas
Slope range: 12 to 65 percent
Parent material: Kind—residuum; source—sandstone and shale

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions

- Pulpit soils on mesas
- Dolcan soils on hills

Similar Inclusions

- Gladel soils on mesas

Major Uses

Wildlife habitat and livestock grazing

Major Management Factors

Rangeland

Suitability: Poor
Dominant vegetation the potential plant community on this unit: Pinyon, juniper, mountain mahogany, western wheatgrass, muttongrass
Potential annual production of air-dry vegetation on the Lazear soil: 500 pounds per acre
Soil-related factors: Depth, slope

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable
Soil-related factors: Depth, slope

Building Site Development

Suitability: Poor
Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

65—Lillings silt loam, sodic, 1 to 3 percent slopes

Setting

Landscape position: Alluvial fans, terraces, and flood plains
Parent material: Kind—alluvium; source—shale
Native plant community: Greasewood and sagebrush
Elevation: 5,800 to 6,300 feet
Mean annual temperature: 50 to 52 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 135 days

Composition

Lillings, sodic soil and similar inclusions: 90 percent
 Contrasting inclusions: 10 percent

Typical Profile

0 to 2 inches—pale brown silt loam
 2 to 29 inches—light gray and light brownish gray silty clay loam
 29 to 60 inches—pale brown and brown silt loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: Rare
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Zyme soils on knobs
- Sideshow soils on terraces
- Ramper soils on alluvial fans

- Mikim soils on alluvial fans

Similar Inclusions

- Lillings soils on terraces

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation the potential plant community:

Alkali sacaton, greasewood, western wheatgrass, big sagebrush, galleta, fourwing saltbush

Potential annual production of air-dry vegetation: 600 pounds per acre

Soil-related factors: Excess salts, excess alkalinity

Management considerations:

- The presence of high salt concentrations adversely affects forage production.
- Low annual precipitation limits forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Excess salts, excess alkalinity

Building Site Development

Suitability: Poor

Soil-related factors: Flooding, corrosivity, low strength

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.
- Some areas are severely gullied and are no longer subject to flooding.
- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.
- Low strength may limit load carrying capacity of the soil and should be considered in structure design.

66—Lillings silty clay loam, 1 to 3 percent slopes

Setting

Landscape position: Alluvial fans, flood plains, and terraces

Parent material: Kind—alluvium; source—shale

Native plant community: Greasewood and sagebrush

Elevation: 5,800 to 6,300 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Lillings soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 2 inches—pale brown silty clay loam

2 to 29 inches—light gray and light brownish gray silty clay loam

29 to 60 inches—pale brown and brown silt loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: Rare

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Zyme soils on knobs
- Sideshow soils on terraces
- Mikim soils on alluvial fans
- Ramper soils on alluvial fans

Similar Inclusions

- Lillings silt loam, sodic, on terraces

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation the potential plant community:

Alkali sacaton, greasewood, western wheatgrass, big sagebrush, galleta, fourwing saltbush

Potential annual production of air-dry vegetation: 700 pounds per acre

Soil-related factors: Excess salt

Management considerations:

- The presence of high salt concentrations adversely affects forage production.
- Low annual precipitation limits forage production.

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Excess salts

Building Site Development

Suitability: Poor

Soil-related factors: Flooding, corrosivity, low strength

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.
- Some areas are severely gullied and are no longer subject to flooding.
- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.
- Low strength may limit load carrying capacity of the soil and should be considered in structure design.

67—Lillings silty clay loam, 3 to 6 percent slopes

Setting

Landscape position: Alluvial fans, terraces, and flood plains

Parent material: Kind—alluvium; source—shale

Native plant community: Greasewood and sagebrush

Elevation: 5,800 to 6,300 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Lillings soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 2 inches—pale brown silty clay loam

2 to 29 inches—light gray and light brownish gray silty clay loam

29 to 60 inches—pale brown and brown silt loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: Rare

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Zyme soils on knobs
- Sideshow soils on terraces
- Mikim soils on alluvial fans
- Ramper soils on alluvial fans

Similar Inclusions

- Lillings silt loam, sodic, on terraces

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation the potential plant community:

Alkali sacaton, greasewood, western wheatgrass, big sagebrush, galleta, fourwing saltbush

Potential annual production of air-dry vegetation: 700 pounds per acre

Soil-related factors: Excess salt

Management considerations:

- The presence of high salt concentrations adversely affects forage production.
- Low annual precipitation limits forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Excess salts

Building Site Development

Suitability: Poor

Soil-related factors: Flooding, corrosivity, low strength

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.
- Some areas are severely gullied and are no longer subject to flooding.
- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.
- Low strength may limit load carrying capacity of the soil and should be considered in structure design.

68—Longburn-Rock outcrop complex, 10 to 45 percent slopes

Setting

Landscape position: Mesas

Parent material: Kind—colluvium and residuum;
source—sandstone and shale

Native plant community: Pinyon and juniper woodland

Elevation: 6,800 to 7,800 feet

Mean annual temperature: 47 to 50 degrees F

Mean annual precipitation: 16 to 19 inches

Frost-free period: 130 to 150 days

Composition

Longburn soil and similar inclusions: 65 percent

Rock outcrop and similar inclusions: 20 percent

Contrasting inclusions: 15 percent

Characteristics of the Longburn soil

Landscape position: Mesas

Slope range: 10 to 45 percent

Parent material: Kind—colluvium and residuum;
source—sandstone

Typical Profile

0 to 1 inch—brown cobbly fine sandy loam

1 to 4 inches—brown very cobbly fine sandy loam

4 to 17 inches—brown very cobbly clay loam

17 inches—hard Cliffhouse Sandstone

Soil Properties

Depth class: Shallow and very shallow

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Landscape position: Mesas

Slope range: 10 to 45 percent

Parent material: Kind—residuum; source—sandstone
and shale

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions

- Roubideau soils on mesas

Similar Inclusions

- Arabrab soils on mesas
- Stephouse soils on mesas

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation the potential plant community on this unit: Pinyon, juniper, muttongrass, Indian ricegrass

Potential annual production of air-dry vegetation on the Longburn soil: 600 pounds per acre

Soil-related factors: Depth, slope

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, depth, stones

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

69—Longburn-Rock outcrop complex, 45 to 80 percent slopes

Setting

Landscape position: Canyons

Parent material: Kind—colluvium and residuum;
source—sandstone

Native plant community: Pinyon and juniper woodland
Elevation: 6,800 to 7,800 feet
Mean annual temperature: 47 to 50 degrees F
Mean annual precipitation: 16 to 19 inches
Frost-free period: 130 to 150 days

Composition

Longburn soil and similar inclusions: 50 percent
 Rock outcrop and similar inclusions: 30 percent
 Contrasting inclusions: 20 percent

Characteristics of the Longburn soil

Landscape position: Canyons
Slope range: 45 to 80 percent
Parent material: Kind—colluvium and residuum;
 source—sandstone

Typical Profile

0 to 1 inch—dark brown cobbly fine sandy loam
 1 to 4 inches—dark brown very cobbly fine sandy loam
 4 to 17 inches—brown very cobbly clay loam
 17 inches—hard Cliffhouse Sandstone

Soil Properties

Depth class: Shallow and very shallow
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low
Potential rooting depth: 6 to 20 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Characteristics of the Rock outcrop

Landscape position: Canyons
Slope range: 45 to 80 percent
Parent material: Kind—residuum; source—sandstone and shale

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions

- Stephouse soils on mesas

Similar Inclusions

- Arabrab soils on mesas

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation the potential plant community on this unit: Pinyon, juniper, muttongrass, Indian ricegrass

Potential annual production of air-dry vegetation on the Longburn soil: 600 pounds per acre

Soil-related factors: Depth, slope

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

70—Mack fine sandy loam, 0 to 6 percent slopes

Setting

Landscape position: Terraces, alluvial fans, and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Desert shrubs and grasses

Elevation: 5,000 to 5,700 feet

Mean annual temperature: 52 to 56 degrees F

Mean annual precipitation: 8 to 10 inches

Frost-free period: 135 to 160 days

Composition

Mack soil and similar inclusions: 85 percent
 Contrasting inclusions: 15 percent

Typical Profile

0 to 13 inches—yellowish red fine sandy loam
 13 to 33 inches—yellowish red and light reddish
 brown sandy clay loam
 33 to 60 inches—light gray sandy clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

- Farb soils on mesas and in canyons
- Uzacol soils on hills
- Sheppard soils on terraces and dunes
- Rock outcrop

Similar Inclusions

- Recapture soils on mesas and alluvial fans

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation the potential plant community:

Alkali sacaton, galleta, Indian ricegrass,
 greasewood, fourwing saltbush, shadscale

Potential annual production of air-dry vegetation: 700
 pounds per acre

Management considerations:

- Low annual precipitation limits forage production.

Cropland

Suitability: Good

Management considerations:

- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Good

71—Mikett clay loam, saline-sodic, 0 to 3 percent slopes**Setting**

Landscape position: Alluvial fans and drainageways

Parent material: Kind—alluvium; source—sandstone
 and shale

Native plant community: Saltgrass and sedges

Elevation: 5,400 to 6,500 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Mikett soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 8 inches—light brownish gray clay loam

8 to 60 inches—light brownish gray clay loam

Soil Properties

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Moderately slow

Available water capacity: Moderate

Potential rooting depth: 12 to 60 inches

Water table: 12 to 36 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

- Mikim soils on alluvial fans
- Zigzag soils on hills
- Sideshow soils on alluvial fans
- Ramper soils on alluvial fans

Similar Inclusions

- Sideslide soils on alluvial fans

Major Uses

Cropland and livestock grazing

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation the potential plant community:

Alkali sacaton, inland saltgrass, western wheatgrass, greasewood, sedges, Baltic rush

Potential annual production of air-dry vegetation:

1,600 pounds per acre

Soil-related factors: Water table, salinity

Management considerations:

- The presence of high salt concentrations adversely affects forage production.
- Low annual precipitation limits forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Salinity, water table

Building Site Development

Suitability: Poor

Soil-related factors: Water table, corrosion

Management considerations:

- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.
- The presence of a high water table seriously affects development.

72—Mikett clay loam, 0 to 3 percent slopes

Setting

Landscape position: Alluvial fans and drainageways

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Greasewood, sedges, and saltgrass

Elevation: 5,400 to 6,500 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Mikett soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 8 inches—light brownish gray clay loam

8 to 60 inches—light brownish gray clay loam

Soil Properties

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 12 to 60 inches

Water table: 36 to 60 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Mikim soils on alluvial fans
- Zigzag soils on hills
- Sideshow soils on alluvial fans

Similar Inclusions

- Ramper soils on alluvial fans

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation the potential plant community:

Alkali sacaton, inland saltgrass, greasewood, western wheatgrass, sedges, fourwing saltbush

Potential annual production of air-dry vegetation:

1,600 pounds per acre

Soil-related factors: Water table, salinity

Management considerations:

- The presence of high salt concentrations adversely affects forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Fair

Soil-related factors: Salinity, high water table

Management considerations:

- The presence of high salt concentrations adversely affects crop production.
- A high water table limits crop selection.

Building Site Development

Suitability: Poor

Soil-related factors: Water table, corrosion

Management considerations:

- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.

- The presence of a high water table seriously affects development.

73—Mikim clay loam, 1 to 3 percent slopes

Setting

Landscape position: Alluvial fans, valleys and drainageways

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Sagebrush and grasses

Elevation: 6,000 to 6,400 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 11 to 13 inches

Frost-free period: 120 to 135 days

Composition

Mikim soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 3 inches—brown clay loam

3 to 15 inches—brown clay loam

15 to 32 inches—brown stratified fine sandy loam to clay loam

32 to 60 inches—brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Mikett soils on alluvial fans
- Zigzag soils on hills
- Sideshow soils on alluvial fans

Similar Inclusions

- Ramper soils on alluvial fans

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation the potential plant community:

Alkali sacaton, galleta, western wheatgrass, big sagebrush, fourwing saltbush

Potential annual production of air-dry vegetation: 625 pounds per acre

Soil-related factors: Salinity

Management considerations:

- Low annual precipitation limits forage production.
- Brush control may be needed to maintain forage production.
- The presence of salt concentrations may adversely affect forage production.

Cropland

Suitability: Fair

Soil-related factors: Salinity

Management considerations:

- The presence of salt concentrations may adversely affect crop production.
- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Fair

Soil-related factors: Corrosivity

Management considerations:

- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.

74—Mikim clay loam, sodic, 0 to 3 percent slopes

Setting

Landscape position: Alluvial fans, valleys, and drainageways

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Greasewood and grasses

Elevation: 6,000 to 6,400 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 11 to 13 inches

Frost-free period: 120 to 135 days

Composition

Mikim soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 3 inches—brown clay loam
 3 to 15 inches—brown clay loam
 15 to 32 inches—brown stratified fine sandy loam to clay loam
 32 to 60 inches—brown clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Medium
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Mikett soils on alluvial fans
- Zigzag soils on hills
- Sideshow soils on alluvial fans

Similar Inclusions

- Ramper soils on alluvial fans

Major Use

Livestock grazing

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation the potential plant community:

Alkali sacaton, galleta, greasewood, fourwing saltbush, big sagebrush, western wheatgrass

Potential annual production of air-dry vegetation: 475 pounds per acre

Soil-related factors: Salinity

Management considerations:

- The presence of high salt concentrations adversely affects forage production.
- Low annual precipitation limits forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Salinity, alkalinity

Building Site Development

Suitability: Fair

Soil-related factors: Corrosion

Management considerations:

- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.

75—Mikim loam, 3 to 6 percent slopes

Setting

Landscape position: Alluvial fans, valleys, and drainageways

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Sagebrush and grasses

Elevation: 6,000 to 6,400 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 11 to 13 inches

Frost-free period: 120 to 135 days

Composition

Mikim soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 3 inches—brown loam
 3 to 15 inches—brown clay loam
 15 to 32 inches—brown stratified fine sandy loam to clay loam
 32 to 60 inches—brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Mikett soils on alluvial fans
- Zigzag soils on hills
- Sideshow soils on alluvial fans

Similar Inclusions

- Ramper soils on alluvial fans

Major Uses

Cropland and livestock grazing

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation the potential plant community:

Alkali sacaton, galleta, western wheatgrass, big sagebrush, fourwing saltbush

Potential annual production of air-dry vegetation: 625 pounds per acre

Soil-related factors: Salinity

Management considerations:

- The presence of salt concentrations may adversely affect forage production.
- Low annual precipitation limits forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Fair

Soil-related factors: Salinity

Management considerations:

- The presence of salt concentrations may adversely affect crop production.
- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Fair

Soil-related factors: Corrosion

Management considerations:

- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.

76—Morefield loam, 1 to 3 percent slopes**Setting**

Landscape position: Mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Pinyon and juniper woodland

Elevation: 6,800 to 7,800 feet

Mean annual temperature: 47 to 50 degrees F

Mean annual precipitation: 16 to 19 inches

Frost-free period: 130 to 150 days

Composition

Morefield soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 2 inches—brown loam

2 to 8 inches—reddish brown clay loam

8 to 24 inches—reddish brown clay loam

24 to 58 inches—reddish brown clay loam

58 to 60 inches—yellowish red clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Stephouse soils on mesas
- Arabrab soils on mesas

Similar Inclusions

- Roubideau soils on mesas

Major Use

Wildlife habitat

Major Management Factors**Rangeland**

Suitability: Good

Dominant vegetation the potential plant community:

Muttongrass, big sagebrush, Indian ricegrass, pinyon, Utah juniper, mountain mahogany, antelope bitterbrush

Potential annual production of air-dry vegetation: 1,000 pounds per acre

Cropland

Suitability: Good

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.

77—Morefield loam, 3 to 6 percent slopes**Setting**

Landscape position: Mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Pinyon and juniper woodland

Elevation: 6,800 to 7,800 feet

Mean annual temperature: 47 to 50 degrees F

Mean annual precipitation: 16 to 19 inches

Frost-free period: 130 to 150 days

Composition

Morefield soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 2 inches—brown loam

2 to 8 inches—reddish brown loam

8 to 24 inches—reddish brown clay loam

24 to 58 inches—reddish brown loam

58 to 60 inches—yellowish red clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Stephouse soils on mesas
- Arabrab soils on mesas

Similar Inclusions

- Roubideau soils on mesas

Major Use

Wildlife habitat

Major Management Factors**Rangeland**

Suitability: Good

Dominant vegetation the potential plant community:

Muttongrass, big sagebrush, Indian ricegrass, pinyon, Utah juniper, antelope bitterbrush, mountain mahogany

Potential annual production of air-dry vegetation:
1,000 pounds per acre

Cropland

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.

78—Nortez-Granath complex, 0 to 6 percent slopes**Setting**

Landscape position: Hills

Parent material: Kind—eolian material; source—sandstone

Native plant community: Ponderosa pine, grasses and shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Nortez soil and similar inclusions: 45 percent

Granath soil and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Nortez soil

Landscape position: Hills

Slope range: 0 to 6 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 2 inches—brown loam

2 to 6 inches—reddish brown clay loam

6 to 13 inches—reddish brown clay loam

13 to 31 inches—yellowish red clay

31 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Slow
Available water capacity: Low
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: High
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Characteristics of the Granath soil

Landscape position: Hills
Slope range: 0 to 6 percent
Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 1 inch—slightly decomposed leaves and pine needles
 1 to 14 inches—grayish brown and brown loam
 14 to 60 inches—reddish brown and light reddish brown clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very high
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions
 • Ormiston soils on hills

Similar Inclusions
 • Pramiss soils on hills
 • Ilex soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation the potential plant community on the Norte soil: Arizona fescue, Parry oatgrass, mountain muhly, ponderosa pine, Gambel's oak, antelope bitterbrush

Dominant vegetation the potential plant community on the Granath soil: Big sagebrush, Arizona fescue, mountain muhly, western wheatgrass
Potential annual production of air-dry vegetation on the Norte soil: 1,200 pounds per acre
Potential annual production of air-dry vegetation on the Granath soil: 1,600 pounds per acre
Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Fair

Soil-related factors: Depth, slope, permeability

Management considerations:

- Depth to bedrock should be considered in making cuts and fills.
- Low available water capacity limits crop production.
- Slow infiltration should be considered in irrigation design.
- The short growing season limits crop selection.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Depth, shrink-swell, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The design of septic systems should consider the slow permeability of the soil.

79—Northrim cobbly loam, 15 to 40 percent slopes

Setting

Landscape position: Hills, canyons, and ridges
Parent material: Kind—colluvium; source—sandstone and shale
Native plant community: Gambel's oak and shrubs
Elevation: 7,800 to 8,300 feet
Mean annual temperature: 43 to 47 degrees F
Mean annual precipitation: 17 to 20 inches
Frost-free period: 80 to 100 days

Composition

Northrim soil and similar inclusions: 80 percent
 Contrasting inclusions: 20 percent

Typical Profile

0 to 2 inches—slightly decomposed oak leaves and twigs
 2 to 9 inches—brown cobbly loam
 9 to 22 inches—pale brown cobbly loam
 22 to 40 inches—pale brown gravelly clay loam
 40 to 60 inches—light yellowish brown clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

- Sheek soils on hills
- Archuleta soils on hills
- Rock outcrop

Similar Inclusions

- Tragmon soils on hills

Major Use

Wildlife habitat

Major Management Factors**Rangeland**

Suitability: Good

Dominant vegetation the potential plant community:
 Gambel's oak, juniper, serviceberry, western wheatgrass

Potential annual production of air-dry vegetation:
 2,000 pounds per acre

Soil-related factors: Slope, stones

Management considerations:

- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope

Building Site Development

Suitability: Poor

Soil-related factors: Slope, permeability

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- Slow permeability should be considered in irrigation design.

80—Ormiston-Beje complex, 5 to 30 percent slopes**Setting**

Landscape position: Hills, ridges and mesas
Parent material: Kind—residuum, slope alluvium, and reworked eolian material; source—sandstone
Native plant community: Pinyon and juniper woodland
Elevation: 7,100 to 8,500 feet
Mean annual temperature: 43 to 47 degrees F
Mean annual precipitation: 15 to 20 inches
Frost-free period: 80 to 100 days

Composition

Ormiston soil and similar inclusions: 50 percent
 Beje soil and similar inclusions: 35 percent
 Contrasting inclusions: 15 percent

Characteristics of the Ormiston soil

Landscape position: Hills and mesas
Slope range: 5 to 25 percent
Parent material: Kind—residuum, slope alluvium, and eolian material; source—sandstone

Typical Profile

0 to 7 inches—brown loam
 7 to 32 inches—reddish brown stony and very stony clay loam
 32 to 44 inches—pinkish white stony clay loam
 44 inches—hard Dakota Sandstone

Soil Properties

Depth class: Deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Potential rooting depth: 40 to 60 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Characteristics of the Beje soil

Landscape position: Hills and ridges
Slope range: 5 to 30 percent

Parent material: Kind—residuum and slope alluvium;
source—sandstone

Typical Profile

0 to 2 inches—brown loam
2 to 14 inches—brown loam
14 inches—hard sandstone

Soil Properties

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Potential rooting depth: 10 to 20 inches
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Nortez soils on hills
- Granath soils on hills
- Rock outcrop

Similar Inclusions

- Fivepine soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair
Dominant vegetation the potential plant community on this unit: Pinyon, Rocky Mountain juniper, mountain mahogany, muttongrass, Gambel's oak
Potential annual production of air-dry vegetation on the Ormiston soil: 1,000 pounds per acre
Potential annual production of air-dry vegetation on the Beje soil: 900 pounds per acre
Soil-related factors: Depth, slope, stones
Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable
Soil-related factors: Slope, depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, permeability, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The design of septic systems should consider the slow permeability of the soil.
- Slope may limit septic system design.

81—Ormiston-Fivepine complex, 0 to 15 percent slopes

Setting

Landscape position: Hills and mesas
Parent material: Kind—residuum, slope alluvium, and eolian material; source—mixed
Native plant community: Ponderosa pine woodland
Elevation: 7,100 to 8,500 feet
Mean annual temperature: 41 to 47 degrees F
Mean annual precipitation: 15 to 20 inches
Frost-free period: 80 to 100 days

Composition

Ormiston soil and similar inclusions: 50 percent
Fivepine soil and similar inclusions: 35 percent
Contrasting inclusions: 15 percent

Characteristics of the Ormiston soil

Landscape position: Hills and mesas
Slope range: 0 to 15 percent
Parent material: Kind—residuum, slope alluvium, and eolian material; source—mixed

Typical Profile

0 to 7 inches—brown loam
7 to 32 inches—reddish brown stony and very stony clay loam
32 to 44 inches—pinkish white stony clay loam
44 inches—hard Dakota Sandstone

Soil Properties

Depth class: Deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Potential rooting depth: 40 to 60 inches
Flooding: None
Runoff: Very high

Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Characteristics of the Fivepine soil

Landscape position: Hills and mesas
Slope range: 0 to 15 percent
Parent material: Kind—residuum and slope alluvium;
 source—sandstone

Typical Profile

0 to 3 inches—reddish brown flaggy loam
 3 to 12 inches—reddish brown flaggy clay loam
 12 to 15 inches—yellowish red flaggy clay
 15 inches—hard Dakota Sandstone

Soil Properties

Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
Available water capacity: Very low
Potential rooting depth: 10 to 20 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Fughes soils in drainageways
- Granath soils on hills

Similar Inclusions

- Nortez soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation the potential plant community on this unit: Ponderosa pine, Gambel's oak, prairie junegrass, Utah serviceberry
Potential annual production of air-dry vegetation on the Ormiston soil: 1,200 pounds per acre
Potential annual production of air-dry vegetation on the Fivepine soil: 800 pounds per acre
Soil-related factors: Stones, depth
Management considerations:

- Low available water capacity limits forage production.

- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable
Soil-related factors: Stones, depth, slope

Building Site Development

Suitability: Poor
Soil-related factors: Depth, permeability

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- The design of septic systems should consider the slow permeability of the soil.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

82—Ormiston-Granath complex, 1 to 12 percent slopes

Setting

Landscape position: Hills and mesas (fig. 3)
Parent material: Kind—reworked eolian material, residuum, and slope alluvium; source—sandstone
Native plant community: Gambel's oak and grasses
Elevation: 7,100 to 8,500 feet
Mean annual temperature: 43 to 47 degrees F
Mean annual precipitation: 15 to 20 inches
Frost-free period: 80 to 100 days

Composition

Ormiston soil and similar inclusions: 50 percent
 Granath soil and similar inclusions: 35 percent
 Contrasting inclusions: 15 percent

Characteristics of the Ormiston soil

Landscape position: Hills and mesas
Slope range: 1 to 12 percent
Parent material: Kind—reworked eolian material, slope alluvium, and residuum; source—sandstone

Typical Profile

0 to 3 inches—brown extremely stony loam
 3 to 7 inches—brown very stony clay loam
 7 to 32 inches—reddish brown stony and very stony clay loam
 32 to 44 inches—pinkish white stony clay loam
 44 inches—hard Dakota Sandstone



Figure 3.—Typical area of the Ormiston-Granath complex, 1 to 12 percent slopes.

Soil Properties

Depth class: Deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Potential rooting depth: 40 to 60 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight
Shrink-swell potential: Moderate

Characteristics of the Granath soil

Landscape position: Hills and mesas
Slope range: 1 to 12 percent
Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 1 inch—slightly decomposed leaves
 1 to 14 inches—grayish brown and brown loam
 14 to 60 inches—reddish brown and light reddish brown clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: High
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Included Areas*Contrasting Inclusions*

- Nortez soils on hills
- Rock outcrop

Similar Inclusions

- Ilex soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Good

Dominant vegetation the potential plant community on the Ormiston soil: Western wheatgrass, Gambel's oak, needlegrass, black sagebrush, Utah serviceberry, Arizona fescue

Dominant vegetation the potential plant community on the Granath soil: Big sagebrush, mountain muhly, Arizona fescue, western wheatgrass

Potential annual production of air-dry vegetation on the Ormiston soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Granath soil: 1,600 pounds per acre

Soil-related factors: Stones

Management considerations:

- Surface stones limit equipment use.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Stones

Building Site Development

Suitability: Poor

Soil-related factors: Depth, permeability, shrink-swell, slope

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The design of septic systems should consider the slow permeability of the soil.

83—Ormiston-Nortez complex, 3 to 12 percent slopes**Setting**

Landscape position: Hills and mesas

Parent material: Kind—slope alluvium, residuum, and reworked eolian material; source—sandstone

Native plant community: Ponderosa pine, grasses, and Gambel's oak woodland

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Ormiston soil and similar inclusions: 45 percent

Nortez soil and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Ormiston soil

Landscape position: Hills and mesas

Slope range: 3 to 12 percent

Parent material: Kind—residuum, slope alluvium, and reworked eolian material; source—sandstone

Typical Profile

0 to 3 inches—brown extremely stony loam

3 to 7 inches—brown very stony clay loam

7 to 32 inches—reddish brown stony and very stony clay loam

32 to 44 inches—pinkish white stony clay loam

44 inches—hard Dakota Sandstone

Soil Properties

Depth class: Deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 40 to 60 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Slight

Shrink-swell potential: Moderate

Characteristics of the Nortez soil

Landscape position: Hills

Slope range: 3 to 12 percent

Parent material: Kind—reworked eolian material;
source—sandstone

Typical Profile

0 to 2 inches—brown loam
2 to 13 inches—reddish brown clay loam
13 to 31 inches—yellowish red clay
31 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Rock outcrop
- Granath soils on hills
- Ilex soils on hills

Similar Inclusions

- Pramiss soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation the potential plant community on the Ormiston soil: Western wheatgrass, Arizona fescue, Gambel's oak, muttongrass, mountain muhly, slender wheatgrass

Dominant vegetation the potential plant community on the Nortez soil: Ponderosa pine, Gambel's oak, mountain muhly, Arizona fescue, antelope bitterbrush, Parry oatgrass

Potential annual production of air-dry vegetation on the Ormiston soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Nortez soil: 1,200 pounds per acre

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Stones

Building Site Development

Suitability: Poor

Soil-related factors: Depth, shrink-swell, permeability, stones

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- The design of septic systems should consider the slow permeability of the soil.
- Surface stones limit equipment use.

84—Payter sandy loam, 3 to 15 percent slopes

Setting

Landscape position: Alluvial fans

Parent material: Kind—alluvium; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,500 to 6,800 feet

Mean annual temperature: 47 to 50 degrees F

Mean annual precipitation: 13 to 15 inches

Frost-free period: 110 to 125 days

Composition

Payter soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 11 inches—brown and yellowish brown sandy loam
11 to 60 inches—grayish brown to yellowish brown sandy loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Moderate

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

- Umbarg soils on floodplains
- Wauquie soils on hills

Similar Inclusions

- Soft bedrock at 40 to 60 inches

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Good

Dominant vegetation the potential plant community:
needleandthread, big sagebrush, western
wheatgrass, blue grama

Potential annual production of air-dry vegetation:
1,200 pounds per acre

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.

85—Pinacol loam, 1 to 12 percent slopes**Setting**

Landscape position: Mesas

Parent material: Kind—slope alluvium over outwash;
source—mixed

Native plant community: Ponderosa pine woodland

Elevation: 7,800 to 8,200 feet

Mean annual temperature: 40 to 45 degrees F

Mean annual precipitation: 18 to 20 inches

Frost-free period: 80 to 115 days

Composition

Pinacol soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 7 inches—brown loam

7 to 11 inches—brown clay loam

11 to 21 inches—reddish brown gravelly clay

21 to 38 inches—reddish brown very cobbly or
extremely cobbly clay

38 to 60 inches—strong brown and pinkish gray
extremely cobbly sandy clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

- Ricot soils on mesas

Similar Inclusions

- Fardraw soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Good

Dominant vegetation the potential plant community:
Ponderosa pine, Gambel's oak, Arizona fescue,
prairie junegrass, mountain muhly, serviceberry,
snowberry

Potential annual production of air-dry vegetation:
1,100 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production.
- Low available water capacity limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- Low available water capacity limits crop production.

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability
Brush control may be needed to maintain forage production.

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.

86—Pinacol loam, 12 to 40 percent slopes

Setting

Landscape position: Hills

Parent material: Kind—slope alluvium over outwash;
source—mixed

Native plant community: Ponderosa pine woodland

Elevation: 7,800 to 8,200 feet

Mean annual temperature: 40 to 45 degrees F

Mean annual precipitation: 18 to 20 inches

Frost-free period: 80 to 115 days

Composition

Pinacol soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 7 inches—brown loam

7 to 11 inches—brown clay loam

11 to 21 inches—reddish brown gravelly clay

21 to 38 inches—reddish brown very cobbly or
extremely cobbly clay

38 to 60 inches—strong brown and pinkish gray
extremely cobbly sandy clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Ricot soils on hills

Similar Inclusions

- Fardraw soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation the potential plant community:

Ponderosa pine, Gambel's oak, Arizona fescue,
prairie junegrass, mountain muhly, serviceberry

Potential annual production of air-dry vegetation:

1,100 pounds per acre

Soil-related factors: Slope

Management considerations:

- Brush control may be needed to maintain forage production.
- Steep slopes limit livestock use to areas of less slope.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Stones, slope

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability, slope

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

87—Pits

Setting

Landscape position: Hills, terraces, and flood plains

Parent material: Kind—alluvium, colluvium, and
residuum; source—mixed

Native plant community: Various

Elevation: 5,000 to 8,000 feet

Mean annual temperature: 43 to 56 degrees F

Mean annual precipitation: 8 to 20 inches

Frost-free period: 80 to 160 days

Composition*Characteristics of Pits**Slope range:* 6 to 60 percent**Included Areas**

Pits and similar inclusions: 95 percent

Contrasting inclusions: 5 percent

Typical Profile

Variable

Soil Properties*Depth class:* Shallow to very deep*Drainage class:* Well to poorly drained*Permeability:* Slow to rapid*Available water capacity:* Low to moderate*Potential rooting depth:* 10 inches or more*Flooding:* None*Runoff:* High*Hazard of water erosion:* Moderate to severe*Hazard of wind erosion:* Moderate*Shrink-swell potential:* Moderate to high**Included Areas***Contrasting Inclusions*

- Areas of undisturbed soils

Major Use

Aggregate source

Major Management Factors**Rangeland***Suitability:* Unsuitable*Soil-related factors:* Depth, slope, stones**Cropland***Suitability:* Unsuitable*Soil-related factors:* Depth, slope, stones**Building Site Development***Suitability:* Poor*Soil-related factors:* Slope, depth*Management considerations:*

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The design of septic systems should consider the permeability of the soil.

88—Pogo loam, 0 to 2 percent slopes**Setting***Landscape position:* Flood plains and drainageways*Parent material:* Kind—alluvium; source—sandstone and shale*Native plant community:* Cattails and sedges*Elevation:* 5,400 to 7,400 feet*Mean annual temperature:* 46 to 52 degrees F*Mean annual precipitation:* 10 to 16 inches*Frost-free period:* 100 to 135 days**Composition**

Pogo soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 2 inches—dark grayish brown loam

2 to 60 inches—stratified light brownish gray to brown silty clay loam to fine sandy loam with yellowish red masses of iron accumulation

Soil Properties*Depth class:* Very deep*Drainage class:* Poorly drained*Permeability:* Moderately slow*Available water capacity:* High*Potential rooting depth:* 0 to 20 inches*Flooding:* Frequent*Runoff:* Medium*Water table:* 0 to 18 inches*Hazard of water erosion:* Slight*Hazard of wind erosion:* Slight*Shrink-swell potential:* Low**Included Areas***Contrasting Inclusions*

- Ackmen soils in drainageways
- Wetherill soils on hills
- Sideshow soils on alluvial fans

Similar Inclusions

- Soils that have bedrock above 60 inches

Major Use

Wildlife habitat

Major Management Factors**Rangeland***Suitability:* Poor*Dominant vegetation the potential plant community:*
Inland saltgrass, cattails, sedges, rushes

Potential annual production of air-dry vegetation:

3,000 pounds per acre

Soil-related factors: Wetness

Cropland

Suitability: Unsuitable

Soil-related factors: Water table

Building Site Development

Suitability: Poor

Soil-related factors: Flooding, water table

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.
- The presence of a high water table seriously affects development.

89—Pramiss very cobbly loam, 6 to 25 percent slopes

Setting

Landscape position: Hills and ridges

Parent material: Kind—colluvium, residuum, and reworked eolian material; source—sandstone and shale

Native plant community: Sagebrush and grasses

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Pramiss soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 3 inches—brown very cobbly loam

3 to 8 inches—brown clay loam

8 to 16 inches—reddish brown clay

16 to 22 inches—light reddish brown clay

22 to 31 inches—pink clay

31 inches—soft calcareous sandstone and shale

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

- Granath soils on hills
- Ilex soils on hills
- Ormiston soils on hills

Similar Inclusions

- Nortez soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation the potential plant community:

Western wheatgrass, Arizona fescue, needlegrass, black sagebrush

Potential annual production of air-dry vegetation: 800 pounds per acre

Soil-related factors: Slope, depth

Management considerations:

- Past logging activities have significantly changed the *Potential plant community in some areas*.
- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope

Building Site Development

Suitability: Poor

Soil-related factors: Slope, depth, shrink-swell, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

90—Pramiss-Granath complex, 3 to 9 percent slopes

Setting

Landscape position: Hills

Parent material: Kind—slope alluvium, reworked eolian material, and residuum; source—shale and sandstone

Native plant community: Grasses and scattered shrubs

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Pramiss soil and similar inclusions: 45 percent

Granath soil and similar inclusions: 35 percent

Contrasting inclusions: 20 percent

Characteristics of the Pramiss soil

Landscape position: Hills

Slope range: 3 to 9 percent

Parent material: Kind—slope alluvium, reworked eolian material, and residuum; source—shale and sandstone

Typical Profile

0 to 3 inches—brown loam

3 to 8 inches—brown clay loam

8 to 16 inches—reddish brown clay

16 to 22 inches—light reddish brown clay

22 to 31 inches—pink clay

31 inches—soft calcareous sandstone and shale

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Granath soil

Landscape position: Hills

Slope range: 3 to 9 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 1 inch—slightly decomposed leaves

1 to 14 inches—grayish brown and brown loam

14 to 60 inches—reddish brown and light reddish brown clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Ormiston soils on hills
- Rock outcrop

Similar Inclusions

- Nortez soils on hills
- Ilex soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation the potential plant community on the Pramiss soil: Arizona fescue, western wheatgrass, Gambel's oak, needlegrass, black sagebrush, mountain muhly

Dominant vegetation the potential plant community on the Granath soil: Arizona fescue, western wheatgrass, big sagebrush, mountain muhly

Potential annual production of air-dry vegetation on the Pramiss soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Granath soil: 1,600 pounds per acre

Soil-related factors: Depth

Management considerations:

- Past logging activities have significantly changed the potential plant community in some areas.
- Low available water capacity limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Depth, slope, permeability

Management considerations:

- Depth to bedrock should be considered in making cuts and fills.
- Low available water capacity limits crop production.
- The short growing season limits crop selection.
- The steep slopes should be managed to prevent excessive erosion.
- Slow permeability should be considered in irrigation design.

Building Site Development

Suitability: Poor

Soil-related factors: Depth, shrink-swell, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The design of septic systems should consider the slow permeability of the soil.

91—Prater loam, 10 to 25 percent slopes

Setting

Landscape position: Canyons, hills, and alluvial fans

Parent material: Kind—colluvium and alluvium;
source—shale and sandstone

Native plant community: Pinyon and juniper woodland

Elevation: 6,800 to 7,800 feet

Mean annual temperature: 47 to 50 degrees F

Mean annual precipitation: 16 to 19 inches

Frost-free period: 130 to 150 days

Composition

Prater soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 1 inch—dark grayish brown loam

1 to 3 inches—brown clay loam

3 to 17 inches—yellowish brown clay loam

17 to 21 inches—light yellowish brown clay loam

21 to 37 inches—very pale brown clay

37 to 60 inches—light gray, light yellowish brown, and brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Moderate

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Severe

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

- Dolcan soils on hills
- Romberg soils on hills
- Rock outcrop

Similar Inclusions

- Sideshow soils on alluvial fans

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation the potential plant community on this unit: Pinyon, juniper, Indian ricegrass, western wheatgrass, Gambel's oak, mountain mahogany

Potential annual production of air-dry vegetation on the Prater soil: 1,000 pounds per acre

Cropland

Suitability: Unsuitable

Soil-related factors: Slope

Building Site Development

Suitability: Poor

Soil-related factors: Slope, permeability, shrink-swell

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

92—Prater-Dolcan complex, 25 to 60 percent slopes

Setting

Landscape position: Canyons, hills, and alluvial fans

Parent material: Kind—colluvium, residuum, and alluvium; source—sandstone and shale

Native plant community: Pinyon and juniper woodland

Elevation: 6,800 to 7,800 feet

Mean annual temperature: 47 to 50 degrees F

Mean annual precipitation: 16 to 19 inches

Frost-free period: 130 to 150 days

Composition

Prater soil and similar inclusions: 60 percent

Dolcan soil and similar inclusions: 25 percent

Contrasting inclusions: 15 percent

Characteristics of the Prater soil

Landscape position: Canyons, hills, and alluvial fans

Slope range: 25 to 60 percent

Parent material: Kind—colluvium and alluvium; source—shale and sandstone

Typical Profile

0 to 1 inch—dark grayish brown loam

1 to 3 inches—brown clay loam

3 to 17 inches—yellowish brown clay loam

17 to 21 inches—light yellowish brown clay loam

21 to 37 inches—very pale brown clay

37 to 60 inches—light gray, light yellowish brown, and brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Moderate

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Severe

Shrink-swell potential: Moderate

Characteristics of the Dolcan soil

Landscape position: Canyons and hills

Slope range: 25 to 60 percent

Parent material: Kind—colluvium and residuum; source—sandstone and shale

Typical Profile

0 to 2 inches—brown extremely cobbly fine sandy loam

2 to 8 inches—brown cobbly clay loam

8 to 11 inches—reddish brown clay loam

11 inches—soft shale

Soil Properties

Depth class: Shallow and very shallow

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Romberg soils on hills
- Rock outcrop

Similar Inclusions

- Zigzag soils on hills and ridges
- Sideshow soils on alluvial fans and hills

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation the potential plant community on this unit: Pinyon, juniper, Indian ricegrass, western wheatgrass, Gambel's oak, mountain mahogany

Potential annual production of air-dry vegetation on the Prater soil: 1,000 pounds per acre

Potential annual production of air-dry vegetation on the Dolcan soil: 500 pounds per acre

Soil-related factors: Depth, slope

Management considerations:

- Low available water capacity limits forage production.

Cropland*Suitability:* Unsuitable*Soil-related factors:* Slope, depth**Building Site Development***Suitability:* Poor*Soil-related factors:* Slope, depth, permeability, shrink-swell*Management considerations:*

- Moderate shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

93—Pulpit loam, 3 to 12 percent slopes***Setting****Landscape position:* Mesas*Parent material:* Kind—eolian material; source—sandstone*Native plant community:* Sagebrush and grasses*Elevation:* 7,400 to 7,800 feet*Mean annual temperature:* 46 to 48 degrees F*Mean annual precipitation:* 13 to 16 inches*Frost-free period:* 100 to 120 days***Composition***

Pulpit soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 5 inches—reddish gray loam

5 to 21 inches—reddish gray silty clay loam

21 to 29 inches—light reddish brown loam

29 to 35 inches—light brown loam

35 inches—hard Dakota Sandstone

Soil Properties*Depth class:* Moderately deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Moderate*Potential rooting depth:* 20 to 40 inches*Flooding:* None*Runoff:* High*Hazard of water erosion:* Severe*Hazard of wind erosion:* Moderate*Shrink-swell potential:* Low***Included Areas****Contrasting Inclusions*

- Lazear soils on mesas
- Rock outcrop on mesas

Similar Inclusions

- Wetherill soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland***Suitability:* Fair*Dominant vegetation the potential plant community:*

Western wheatgrass, muttongrass, big sagebrush, Indian ricegrass

Potential annual production of air-dry vegetation: 800 pounds per acre*Soil-related factors:* Depth*Management considerations:*

- Low available water capacity limits forage production.

Cropland*Suitability:* Poor*Soil-related factors:* Slope, depth*Management considerations:*

- Low available water capacity limits crop production.
- Depth to bedrock should be considered in making cuts and fills.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development*Suitability:* Poor*Soil-related factors:* Depth, slope, shrink-swell*Management considerations:*

- Moderate shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

94—Pulpit loam, 3 to 6 percent slopes**Setting**

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Pulpit soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 10 inches—reddish brown loam

10 to 20 inches—reddish brown clay loam

20 to 30 inches—reddish brown loam

30 to 36 inches—pink fine sandy loam

36 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Moderate

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas**Contrasting Inclusions**

- Rock outcrop
- Wetherill soils on hills and mesas
- Cahona soils on hills and mesas
- Gladel soils on hills and mesas

Similar Inclusions

- Sharps soils on hills and mesas

Major Uses

Cropland and livestock grazing

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation the potential plant community:

Western wheatgrass, muttongrass, big sagebrush, Indian ricegrass

Potential annual production of air-dry vegetation: 800 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Fair

Soil-related factors: Slope, depth

Management considerations:

- Depth to bedrock should be considered in making cuts and fills.
- The steep slopes should be managed to prevent excessive erosion.
- Low available water capacity limits crop production.

Building Site Development

Suitability: Poor

Soil-related factors: Depth

Management considerations:

- Depth to bedrock may limit excavations.

95—Pulpit loam, 6 to 12 percent slopes**Setting**

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Pulpit soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 10 inches—reddish brown loam
 10 to 20 inches—reddish brown clay loam
 20 to 30 inches—reddish brown loam
 30 to 36 inches—pink fine sandy loam
 36 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Rock outcrop
- Wetherill soils on hills and mesas
- Cahona soils on hills and mesas
- Gladel soils on hills and mesas

Similar Inclusions

- Sharps soils on hills and mesas

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation the potential plant community:

Western wheatgrass, muttongrass, big sagebrush, Indian ricegrass, rabbitbrush, prairie junegrass

Potential annual production of air-dry vegetation: 800 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Slope, depth

Management considerations:

- Low available water capacity limits crop production.

- Depth to bedrock should be considered in making cuts and fills.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

96—Purcella loam, 0 to 3 percent slopes

Setting

Landscape position: Terraces

Parent material: Kind—alluvium; source—mixed

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Purcella soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 4 inches—dark brown loam
 4 to 11 inches—dark brown gravelly loam
 11 to 30 inches—dark brown extremely cobbly clay loam
 30 to 41 inches—brown extremely cobbly sandy clay loam
 41 to 60 inches—brown extremely cobbly sandy loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

- Pogo soils in drainageways

Similar Inclusions

- Collide soils on terraces

Major Use

Irrigated cropland

Major Management Factors**Rangeland**

Suitability: Good

Dominant vegetation the potential plant community:

Western wheatgrass, muttongrass, Indian ricegrass, big sagebrush

Potential annual production of air-dry vegetation:

1,200 pounds per acre

Soil-related factors: Stones

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Stones

Management considerations:

- Low available water capacity limits crop production.

Building Site Development

Suitability: Fair

Soil-related factors: Stones

97—Ramper clay loam, 0 to 3 percent slopes**Setting**

Landscape position: Alluvial fans, drainageways, and flood plains

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Sagebrush and grasses

Elevation: 6,000 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 12 to 16 inches

Frost-free period: 100 to 120 days

Composition

Ramper soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 3 inches—dark yellowish brown clay loam

3 to 60 inches—brown stratified sandy loam to clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: Rare

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

- Gullied land
- Ackmen soils on flood plains
- Mikim soils on alluvial fans

Similar Inclusions

- Sideshow soils on alluvial fans
- Ramper loam soils on alluvial fans

Major Uses

Cropland and livestock grazing

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation the potential plant community:

Western wheatgrass, big sagebrush, bottlebrush squirreltail, Indian ricegrass, slender wheatgrass

Potential annual production of air-dry vegetation: 900 pounds per acre

Management considerations:

- Low annual precipitation limits forage production.

Cropland

Suitability: Good

Management considerations:

- Low annual precipitation limits cropping systems.

Building Site Development*Suitability:* Poor*Soil-related factors:* Flooding*Management considerations:*

- The hazard of flooding limits the suitability of this unit for use as a building site.
- Some areas are severely gullied and are no longer subject to flooding.

98—Ramper loam, 0 to 3 percent slopes***Setting****Landscape position:* Alluvial fans, drainageways, and flood plains*Parent material:* Kind—alluvium; source—sandstone and shale*Native plant community:* Sagebrush and grasses*Elevation:* 6,000 to 7,400 feet*Mean annual temperature:* 46 to 50 degrees F*Mean annual precipitation:* 12 to 16 inches*Frost-free period:* 100 to 120 days***Composition***

Ramper soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 3 inches—dark yellowish brown loam

3 to 60 inches—brown stratified sandy loam to clay loam

Soil Properties*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Moderate*Potential rooting depth:* 60 inches or more*Flooding:* Rare*Runoff:* Medium*Hazard of water erosion:* Slight*Hazard of wind erosion:* Moderate*Shrink-swell potential:* Low***Included Areas****Contrasting Inclusions*

- Gullied land
- Ackmen soils on flood plains

Similar Inclusions

- Ramper clay loam on alluvial fans
- Sideshow soils on alluvial fans

Major Uses

Livestock grazing and cropland

Major Management Factors**Rangeland***Suitability:* Fair*Dominant vegetation the potential plant community:*

Western wheatgrass, big sagebrush, slender wheatgrass, Indian ricegrass

Potential annual production of air-dry vegetation: 900 pounds per acre*Management considerations:*

- Low annual precipitation limits forage production.
- Brush control may be needed to maintain forage production.

Cropland*Suitability:* Good*Management considerations:*

- Low annual precipitation limits cropping systems.

Building Site Development*Suitability:* Poor*Soil-related factors:* Flooding*Management considerations:*

- The hazard of flooding limits the suitability of this unit for use as a building site.
- Some areas are severely gullied and are no longer subject to flooding.

99—Ravola clay loam, 0 to 3 percent slopes***Setting****Landscape position:* Flood plains and alluvial fans*Parent material:* Kind—alluvium; source—sandstone and shale*Native plant community:* Desert shrubs and grasses*Elevation:* 5,000 to 5,700 feet*Mean annual temperature:* 52 to 56 degrees F*Mean annual precipitation:* 8 to 10 inches*Frost-free period:* 135 to 160 days

Composition

Ravola soil and similar inclusions: 85 percent
 Contrasting inclusions: 15 percent

Typical Profile

0 to 9 inches—pale brown clay loam
 9 to 60 inches—pale brown and light yellowish brown
 stratified loamy sand to clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low
Potential rooting depth: 60 inches or more
Flooding: Rare
Runoff: Medium
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas**Contrasting Inclusions**

- Rock outcrop
- Zwicker soils on hills
- Gullied land

Similar Inclusions

- Battlerock soils on terraces and drainageways
- Yarts soils on terraces and alluvial fans

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Poor

Dominant vegetation the potential plant community:
 Alkali sacaton, greasewood, fourwing saltbush,
 western wheatgrass, inland saltgrass, galleta

Potential annual production of air-dry vegetation: 600
 pounds per acre

Soil-related factors: Salts

Management considerations:

- The presence of high salt concentrations adversely affects forage production.
- Low annual precipitation limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Salts

Management considerations:

- The presence of high salt concentrations adversely affects crop production.
- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Fair

Soil-related factors: Corrosion

Management considerations:

- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.

100—Recapture fine sandy loam, 0 to 6 percent slopes**Setting**

Landscape position: Mesas

Parent material: Kind—eolian material; source—
 sandstone

Native plant community: Desert shrubs and grasses

Elevation: 5,000 to 5,700 feet

Mean annual temperature: 52 to 56 degrees F

Mean annual precipitation: 8 to 10 inches

Frost-free period: 135 to 160 days

Composition

Recapture soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 4 inches—light brown fine sandy loam

4 to 7 inches—yellowish red fine sandy loam

7 to 26 inches—yellowish red clay loam and sandy
 clay loam

26 to 37 inches—pink and reddish yellow loam

37 to 60 inches—reddish yellow very fine sandy loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Potential rooting depth: 10 to 20 inches

Flooding: None

Runoff: Low

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

- Barx soils on mesas and hills
- Gapmesa soils on hills and mesas
- Rock outcrop

Similar Inclusions

- Recapture sandy loam soils

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation the potential plant community:

Greasewood, alkali sacaton, fourwing saltbush, galleta, shadscale, Indian ricegrass

Potential annual production of air-dry vegetation: 650 pounds per acre

Soil-related factors: Alkalinity

Management considerations:

- The presence of high salt concentrations adversely affects forage production.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: excess sodium

Building Site Development

Suitability: Fair

Soil-related factors: Corrosion

Management considerations:

- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.

101—Recapture sandy loam, 0 to 6 percent slopes**Setting**

Landscape position: Alluvial fans and mesas

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Desert shrubs and grasses

Elevation: 5,000 to 5,700 feet

Mean annual temperature: 52 to 56 degrees F

Mean annual precipitation: 8 to 10 inches

Frost-free period: 135 to 160 days

Composition

Recapture soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 6 inches—light brown sandy loam

6 to 13 inches—brown clay loam

13 to 17 inches—brown sandy loam

17 to 38 inches—brown sandy clay loam and clay loam

38 to 60 inches—brown sandy loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Moderate

Potential rooting depth: 10 to 20 inches

Flooding: Rare

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

Uzacol soils on hills

Claysprings soils on knobs

Similar Inclusions

Battlerock soils on terraces

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Poor

Dominant vegetation in the potential plant community:

Alkali sacaton, western wheatgrass, big sagebrush, greasewood, inland saltgrass, shadscale, fourwing saltbush

Potential annual production of air-dry vegetation: 525 pounds per acre

Soil-related factors: Excess sodium

Management considerations:

- Low annual precipitation limits forage production.
- Low available water capacity limits forage production

Cropland

Suitability: Unsuitable

Soil-related factors: Excess sodium

Building Site Development*Suitability:* Poor*Soil-related factors:* Flooding, permeability, corrosivity*Management considerations:*

- The hazard of flooding limits the suitability of this unit for use as a building site.
- The design of septic systems should consider the slow permeability of the soil.
- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.

102—Ricot loam, 1 to 3 percent slopes***Setting****Landscape position:* Mesas*Parent material:* Kind—eolian material over outwash; source—mixed*Native plant community:* Sagebrush and grasses*Elevation:* 7,500 to 8,000 feet*Mean annual temperature:* 43 to 47 degrees F*Mean annual precipitation:* 15 to 20 inches*Frost-free period:* 80 to 100 days***Composition***

Ricot soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 12 inches—brown loam

12 to 16 inches—reddish brown clay loam

16 to 38 inches—reddish brown clay

38 to 60 inches—light reddish brown stony clay loam

Soil Properties*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Slow*Available water capacity:* Moderate*Potential rooting depth:* 60 inches or more*Flooding:* None*Runoff:* Medium*Hazard of water erosion:* Slight*Hazard of wind erosion:* Moderate*Shrink-swell potential:* Moderate***Included Areas****Contrasting Inclusions*

Nortez soils on hills

Ormiston soils on mesas

Similar Inclusions

Granath soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland***Suitability:* Good*Dominant vegetation in the potential plant community:*

Arizona fescue, western wheatgrass, serviceberry, big sagebrush

Potential annual production of air-dry vegetation:

1,500 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland*Suitability:* Fair*Soil-related factors:* Permeability*Management considerations:*

- The short growing season limits crop selection.
- Slow permeability should be considered in irrigation design.

Building Site Development*Suitability:* Fair*Soil-related factors:* Shrink-swell, permeability*Management considerations:*

- Moderate shrink-swell potential must be considered in the design of structures
- The design of septic systems should consider the slow permeability of the soil

103—Ricot loam, 3 to 6 percent slopes***Setting****Landscape position:* Mesas*Parent material:* Kind—eolian material over outwash; source—mixed*Native plant community:* Sagebrush and grasses*Elevation:* 7,500 to 8,000 feet*Mean annual temperature:* 43 to 47 degrees F*Mean annual precipitation:* 15 to 20 inches*Frost-free period:* 80 to 100 days***Composition***

Ricot soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 12 inches—brown loam
 12 to 16 inches—reddish brown clay loam
 16 to 38 inches—reddish brown clay
 38 to 60 inches—light reddish brown stony clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: High
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions
 Nortez soils on hills
 Ormiston soils on mesas

Similar Inclusions
 Granath soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation in the potential plant community:
 Arizona fescue, western wheatgrass,
 serviceberry, big sagebrush
Potential annual production of air-dry vegetation:
 1,500 pounds per acre

Management considerations:
 • Brush control may be needed to maintain forage production.

Cropland

Suitability: Fair
Soil-related factors: Slope, permeability

Management considerations:
 • The short growing season limits crop selection.
 • The steep slopes should be managed to prevent excessive erosion.
 • Slow permeability should be considered in irrigation design.

Building Site Development

Suitability: Fair
Soil-related factors: Shrink-swell, permeability

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.

104—Ricot loam, 6 to 12 percent slopes

Setting

Landscape position: Mesas
Parent material: Kind—eolian material over outwash;
 source—mixed
Native plant community: Sagebrush and grasses
Elevation: 7,500 to 8,000 feet
Mean annual temperature: 43 to 47 degrees F
Mean annual precipitation: 15 to 20 inches
Frost-free period: 80 to 100 days

Composition

Ricot soil and similar inclusions: 80 percent
 Contrasting inclusions: 20 percent

Typical Profile

0 to 12 inches—brown loam
 12 to 16 inches—reddish brown clay loam
 16 to 38 inches—reddish brown clay
 38 to 60 inches—light reddish brown stony clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions
 Nortez soils on hills
 Ormiston soils on mesas

Similar Inclusions
 Granath soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Good

Dominant vegetation in the potential plant community:

Arizona fescue, western wheatgrass,
serviceberry, big sagebrush

Potential annual production of air-dry vegetation:

1,500 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.
- The short growing season limits crop selection.

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell, permeability, slope

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

105—Rizno-Gapmesa complex, 3 to 9 percent slopes**Setting**

Landscape position: Mesas and hills

Parent material: Kind—residuum and eolian material;
source—sandstone

Native plant community: Pinyon and juniper woodland
with grasses and scattered shrubs

Elevation: 5,400 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Rizno soil and similar inclusions: 45 percent

Gapmesa soil and similar inclusions: 35 percent

Contrasting inclusions: 20 percent

Characteristics of the Rizno soil

Landscape position: Mesas

Slope range: 3 to 9 percent

Parent material: Kind—residuum and eolian material;
source—sandstone

Typical Profile

0 to 5 inches—reddish brown very fine sandy loam

5 to 13 inches—reddish brown loam

13 inches—hard Dakota Sandstone

Soil Properties

Depth class: Shallow and very shallow

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Gapmesa soil

Landscape position: Mesas and hills

Slope range: 3 to 9 percent

Parent material: Kind—eolian material; source—
sandstone

Typical Profile

0 to 2 inches—brown very fine sandy loam

2 to 21 inches—yellowish red gravelly very fine
sandy loam

21 to 28 inches—light reddish brown gravelly fine
sandy loam

28 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Rock outcrop

Barx soils on mesas and hills

Crosscan soils on hills

Similar Inclusions

Sharps, dry soils on mesas and hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community on the Rizno soil: Pinyon, juniper, Indian ricegrass, galleta, western wheatgrass

Dominant vegetation in the potential plant community on the Gapmesa soil: Big sagebrush, galleta, Indian ricegrass, needleandthread

Potential annual production of air-dry vegetation on the Rizno soil: 500 pounds per acre

Potential annual production of air-dry vegetation on the Gapmesa soil: 600 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.
- Low annual precipitation limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth, slope

Building Site Development

Suitability: Poor

Soil-related factors: Depth

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.

106—Rizno-Littlenan-Bodry association, 3 to 50 percent slopes

Setting

Landscape position: Structural benches, ridges, and hills

Parent material: Kind—eolian material, alluvium, residuum, and colluvium; source—sandstone and shale

Native plant community: Desert shrubs and grasses with scattered pinyon and juniper

Elevation: 5,600 to 5,800 feet

Mean annual temperature: 49 to 53 degrees F

Mean annual precipitation: 10 to 12 inches

Frost-free period: 120 to 135 days

Composition

Rizno soil and similar inclusions: 30 percent

Littlenan soil and similar inclusions: 20 percent

Bodry soil and similar inclusions: 20 percent

Contrasting inclusions: 30 percent

Characteristics of the Rizno soil

Landscape position: Structural benches and ridges

Slope range: 3 to 15 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 3 inches—reddish brown fine sandy loam

3 to 13 inches—reddish brown fine sandy loam

13 inches—hard Dakota Sandstone

Soil Properties

Depth class: Shallow and very shallow

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Littlenan soil

Landscape position: Structural benches

Slope range: 3 to 20 percent

Parent material: Kind—alluvium and residuum; source—shale

Typical Profile

0 to 3 inches—light brown gravelly loam

3 to 14 inches—light brown silty clay loam

14 to 29 inches—light brown silty clay

29 inches—weathered shale

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Characteristics of the Bodry soil

Landscape position: Hills
Slope range: 20 to 50 percent
Parent material: Kind—colluvium and residuum;
 source—shale

Typical Profile

0 to 6 inches—light brown very cobbly loam
 6 to 15 inches—light brownish gray clay loam
 15 to 36 inches—light gray clay loam
 36 inches—weathered shale

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Slight
Shrink-swell potential: High

Included Areas

Contrasting Inclusions
 Badland
 Barx soils on mesas
 Typic Torriorthents on hills and canyons
Similar Inclusions
 Soils that have more rock fragments on surface

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Very poor
Dominant vegetation in the potential plant community on the Rizno and Bodry soils: Utah juniper, pinyon, cliffrose, galleta, Indian ricegrass

Dominant vegetation in the potential plant community on the Littlenan soil: Galleta, Indian ricegrass, bottlebrush squirreltail, shadscale, saltbush
Potential annual production of air-dry vegetation on the Rizno soil: 200 pounds per acre
Potential annual production of air-dry vegetation on the Littlenan soil: 225 pounds per acre
Potential annual production of air-dry vegetation on the Bodry soil: 350 pounds per acre
Soil-related factors: Slopes, depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable
Soil-related factors: Slopes, depth

Building Site Development

Suitability: Poor
Soil-related factors: Depth, shrink-swell, slope, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

107—Rizno-Ruinpoint-Rock outcrop complex, 1 to 15 percent slopes

Setting

Landscape position: Mesas
Parent material: Kind—eolian material and residuum;
 source—sandstone
Native plant community: Pinyon and juniper woodland
Elevation: 5,400 to 5,600 feet
Mean annual temperature: 50 to 52 degrees F
Mean annual precipitation: 10 to 12 inches
Frost-free period: 120 to 135 days

Composition

Rizno soil and similar inclusions: 35 percent
 Ruinpoint soil and similar inclusions: 25 percent

Rock outcrop: 20 percent
 Contrasting inclusions: 20 percent

Characteristics of the Rizno soil

Landscape position: Mesas
Slope range: 3 to 15 percent
Parent material: Kind—residuum; source—sandstone

Typical Profile

0 to 3 inches—reddish brown fine sandy loam
 3 to 13 inches—reddish brown fine sandy loam
 13 inches—hard Dakota Sandstone

Soil Properties

Depth class: Shallow and very shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Potential rooting depth: 6 to 20 inches
Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Characteristics of the Ruinpoint soil

Landscape position: Mesas
Slope range: 1 to 8 percent
Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 2 inches—yellowish red very fine sandy loam
 2 to 13 inches—yellowish red silt loam
 13 to 60 inches—reddish yellow silt loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Medium
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Characteristics of the Rock outcrop

Landscape position: Mesas
Slope range: 1 to 15 percent
Parent material: Kind—residuum; source—Dakota Sandstone

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions
 Recapture soils on mesas
 Gapmesa soils on mesas

Similar Inclusions
 Barx soils on mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor
Dominant vegetation in the potential plant community on this unit: Big sagebrush, Indian ricegrass, galleta, blackbrush
Potential annual production of air-dry vegetation on the Rizno soil: 300 pounds per acre
Potential annual production of air-dry vegetation on the Ruinpoint soil: 600 pounds per acre
Soil-related factors: Depth

Management considerations:

- Low annual precipitation limits forage production.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable
Soil-related factors: Depth, Rock outcrop

Building Site Development

Suitability: Poor
Soil-related factors: Depth, Rock outcrop

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.

108—Rock outcrop

Setting

Landscape position: Hills, canyons, escarpments, and mesas
Parent material: Kind—residuum; source—sandstone

Slope range: 0 to 200 percent
Native plant community: None
Elevation: 5,000 to 8,500 feet
Mean annual temperature: 43 to 56 degrees F
Mean annual precipitation: 8 to 20 inches
Frost-free period: 80 to 160 days

Composition

Rock outcrop and similar inclusions: 95 percent
 Contrasting inclusions: 5 percent

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions
 Areas of soils and vegetation

Similar Inclusions
 Badland

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Unsuitable

Cropland

Suitability: Unsuitable

Building site development

Suitability: Unsuitable

109—Romberg-Crosscan complex, 6 to 25 percent slopes

Setting

Landscape position: Canyons, hills, and alluvial fans
Parent material: Kind—colluvium, alluvium, and residuum; source—sandstone and shale
Native plant community: Pinyon and juniper woodland
Elevation: 5,400 to 6,800 feet
Mean annual temperature: 50 to 52 degrees F
Mean annual precipitation: 10 to 14 inches
Frost-free period: 120 to 135 days

Composition

Romberg soil and similar inclusions: 45 percent
 Crosscan soil and similar inclusions: 40 percent
 Contrasting inclusions: 15 percent

Characteristics of the Romberg soil

Landscape position: Canyons, hills, and alluvial fans
Slope range: 6 to 25 percent
Parent material: Kind—colluvium and alluvium; source—sandstone and shale

Typical Profile

0 to 2 inches—dark brown very stony loam
 2 to 20 inches—dark brown to light brown very stony clay loam
 20 to 60 inches—brown very stony clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Slight
Shrink-swell potential: Low

Characteristics of the Crosscan soil

Landscape position: Canyons and hills
Slope range: 6 to 25 percent
Parent material: Kind—colluvium and residuum; source—sandstone and shale

Typical Profile

0 to 2 inches—dark brown very bouldery sandy clay loam
 2 to 9 inches—light brown very gravelly clay loam
 9 to 18 inches—variegated colors of very gravelly clay loam
 18 inches—soft calcareous shale

Soil Properties

Depth class: Shallow and very shallow
Drainage class: Well drained
Permeability: Slow
Available water capacity: Very low
Potential rooting depth: 6 to 20 inches
Flooding: None

Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Slight
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions
 Barx soils on hills
 Rizno soils on mesas
 Zigzag soils on knobs, ridges, and hills
 Rock outcrop

Similar Inclusions
 Soils that have fewer rock fragments on the surface

Major Uses

Wildlife habitat and livestock grazing

Major Management Factors

Rangeland

Suitability: Very poor
Dominant vegetation in the potential plant community on this unit: Utah juniper, pinyon, mountain mahogany, Indian ricegrass, galleta, western wheatgrass
Potential annual production of air-dry vegetation on the Romberg soil: 350 pounds per acre
Potential annual production of air-dry vegetation on the Crosscan soil: 200 pounds per acre
Soil-related factors: Slope and stoniness

Cropland

Suitability: Unsited
Soil-related factors: Slope, stones

Building Site Development

Suitability: Poor
Soil-related factors: Slope, permeability, depth
Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

110—Romberg-Crosscan-Rock outcrop complex, 25 to 80 percent slopes

Setting

Landscape position: Canyons, hills, and structural benches
Parent material: Kind—colluvium and residuum; source—sandstone and shale
Native plant community: Pinyon and juniper woodland
Elevation: 5,400 to 6,800 feet
Mean annual temperature: 50 to 52 degrees F
Mean annual precipitation: 10 to 14 inches
Frost-free period: 120 to 135 days

Composition

Romberg soil and similar inclusions: 35 percent
 Crosscan soil and similar inclusions: 30 percent
 Rock outcrop: 20 percent
 Contrasting inclusions: 15 percent

Characteristics of the Romberg soil

Landscape position: Canyons, hills, and structural benches
Slope range: 25 to 50 percent
Parent material: Kind—colluvium; source—sandstone and shale

Typical Profile

0 to 2 inches—dark brown very stony loam
 2 to 20 inches—dark brown to light brown very stony clay loam
 20 to 60 inches—brown very stony clay loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Slight
Shrink-swell potential: Low

Characteristics of the Crosscan soil

Landscape position: Canyons and hills
Slope range: 25 to 80 percent
Parent material: Kind—colluvium and residuum; source—sandstone and shale

Typical Profile

0 to 2 inches—dark brown very bouldery sandy clay loam
 2 to 9 inches—light brown very gravelly clay loam
 9 to 18 inches—variegated colors of very gravelly clay loam
 18 inches—soft calcareous shale

Soil Properties

Depth class: Shallow and very shallow
Drainage class: Well drained
Permeability: Slow
Available water capacity: Very low
Potential rooting depth: 6 to 20 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Slight
Shrink-swell potential: Low

Characteristics of the Rock outcrop

Landscape position: Canyons and hills
Slope range: 25 to 80 percent
Parent material: Kind—residuum; source—sandstone and shale

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions
 Gapmesa soils on hills and mesas
 Rizno soils on mesas and structural benches
 Torriorthents on hills and canyons
 Zigzag soils on ridges and knobs

Similar Inclusions
 Soils that have fewer rock fragments on surface
 Soils that have hard bedrock

Major Uses

Wildlife habitat and livestock grazing

Major Management Factors**Rangeland**

Suitability: Very poor
Dominant vegetation in the potential plant community on this unit: Utah juniper, pinyon, mountain mahogany, Indian ricegrass, galleta, western wheatgrass

Potential annual production of air-dry vegetation on the Romberg soil: 300 pounds per acre
Potential annual production of air-dry vegetation on the Crosscan soil: 200 pounds per acre
Soil-related factors: Slope, depth, stones

Management considerations:

- Steep slopes limit livestock use to areas of less slope.
- Low available water capacity limits forage production.
- Surface stones limit equipment use.

Cropland

Suitability: Unsited
Soil-related factors: Slope, stones

Building Site Development

Suitability: Poor
Soil-related factors: Slope, permeability, depth

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

111—Roubideau loam, 1 to 6 percent slopes**Setting**

Landscape position: Mesas
Parent material: Kind—eolian material; source—sandstone
Native plant community: Pinyon and juniper woodland
Elevation: 6,800 to 7,800 feet
Mean annual temperature: 47 to 50 degrees F
Mean annual precipitation: 16 to 19 inches
Frost-free period: 130 to 150 days

Composition

Roubideau soil and similar inclusions: 80 percent
 Contrasting inclusions: 20 percent

Typical Profile

0 to 6 inches—brown loam
 6 to 36 inches—brown and strong brown loam
 36 to 38 inches—strong brown channery loam
 38 inches—hard Cliffhouse Sandstone

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions
 Longburn soils on mesas
 Arabrab soils on mesas

Similar Inclusions
 Morefield soils on mesas

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Good
Dominant vegetation in the potential plant community:
 Pinyon, Utah juniper, muttongrass, mountain
 mahogany, antelope bitterbrush, big sagebrush,
 Indian ricegrass
Potential annual production of air-dry vegetation:
 1,000 pounds per acre
Soil-related factors: Depth

Cropland

Suitability: Fair
Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock should be considered in making cuts and fills.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor
Soil-related factors: Depth, shrink-swell

Management considerations:

- Depth to bedrock may limit excavations.
- Moderate shrink-swell potential should be considered in the design of structures.

112—Sharps loam, 3 to 6 percent slopes

Setting

Landscape position: Mesas and hills
Parent material: Kind—eolian material; source—
 sandstone
Native plant community: Sagebrush and grasses
Elevation: 6,200 to 7,400 feet
Mean annual temperature: 46 to 50 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 120 days

Composition

Sharps soil and similar inclusions: 80 percent
 Contrasting inclusions: 20 percent

Typical Profile

0 to 9 inches—light reddish brown loam
 9 to 19 inches—reddish brown clay loam
 19 to 30 inches—light reddish brown and pink loam
 30 inches—shale and soft sandstone

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions
 Wetherill soils on hills and mesas
 Cahona soils on hills and mesas

Similar Inclusions
 Pulpit soils on hills and mesas

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair
Dominant vegetation in the potential plant community:
 Western wheatgrass, muttongrass, big
 sagebrush, Indian ricegrass

Potential annual production of air-dry vegetation: 900 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Fair

Soil-related factors: Slope, depth

Management considerations:

- Depth to bedrock should be considered in making cuts and fills.
- Low available water capacity limits crop production.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Fair

Soil-related factors: Depth

Management considerations:

- Depth to bedrock may limit excavations.

113—Sharps loam, 6 to 12 percent slopes

Setting

Landscape position: Mesas and hills

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Sharps soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 9 inches—light reddish brown loam

9 to 19 inches—reddish brown clay loam

19 to 30 inches—light reddish brown and pink loam

30 inches—shale or soft sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Rock outcrop

Wetherill soils on hills and mesas

Cahona soils on hills and mesas

Gladel soils on hills and mesas

Similar Inclusions

Pulpit soils on hills and mesas

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Western wheatgrass, muttongrass, big sagebrush, black sagebrush, Indian ricegrass, galleta

Potential annual production of air-dry vegetation: 900 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Slope, depth

Management considerations:

- Low available water capacity limits crop production.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Fair

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

114—Sharps loam, dry, 6 to 12 percent slopes

Setting

Landscape position: Mesas and hills

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 5,400 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Sharps, dry soil and similar inclusions: 80 percent
Contrasting inclusions: 20 percent

Typical Profile

0 to 2 inches—reddish brown loam

2 to 27 inches—reddish brown loam

27 to 32 inches—light brownish gray clay loam

32 inches—soft Mancos Shale

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Rock outcrop

Rizno soils on mesas

Barx soils on hills and mesas

Similar Inclusions

Gapmesa soils on hills and mesas

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community:

Galleta, big sagebrush, Indian ricegrass, western wheatgrass

Potential annual production of air-dry vegetation: 600 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.
- Low annual precipitation limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Slope, depth

Management considerations:

- Low annual precipitation limits cropping systems.
- Low available water capacity limits crop production.
- The steep slopes should be managed to prevent excessive erosion.
- Depth to bedrock should be considered in making cuts and fills.

Building Site Development

Suitability: Fair

Soil-related factors: Slope, depth, permeability

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Depth to bedrock may limit excavations.
- The design of septic systems should consider the slow permeability of the soil.

115—Sharps, dry-Gapmesa complex, 6 to 12 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Scattered sagebrush and grasses

Elevation: 5,400 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Sharps, dry soil and similar inclusions: 45 percent

Gapmesa soil and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Sharps, dry soil

Landscape position: Hills and mesas

Slope range: 6 to 12 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 2 inches—reddish brown loam
 2 to 27 inches—reddish brown loam
 27 to 32 inches—light brownish gray clay
 32 inches—shale and soft sandstone

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Characteristics of the Gapmesa soil

Landscape position: Hills and mesas
Slope range: 6 to 12 percent
Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 2 inches—brown very fine sandy loam
 2 to 21 inches—yellowish red loam
 21 to 28 inches—light reddish brown gravelly fine sandy loam
 28 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Potential rooting depth: 20 to 40 inches
Flooding: None
Runoff: High
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions
 Barx soils on hills and mesas
 Rock outcrop
 Rizno soils on mesas

Similar Inclusions
 Sharps loam, dry

Major Use

Livestock grazing

Major Management Factors

Rangeland

Suitability: Fair
Dominant vegetation in the potential plant community on this unit: Galleta, big sagebrush, bottlebrush squirreltail, western wheatgrass, Indian ricegrass
Potential annual production of air-dry vegetation on the Sharps, dry soil: 600 pounds per acre
Potential annual production of air-dry vegetation on the Gapmesa soil: 600 pounds per acre
Soil-related factors: Depth

Management considerations:

- Low annual precipitation limits forage production.
- Low available water capacity limits forage production.

Cropland

Suitability: Poor
Soil-related factors: Slope, depth

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.
- Depth to bedrock should be considered in making cuts and fills.
- Low annual precipitation limits cropping systems.
- Low available water capacity limits crop production.

Building Site Development

Suitability: Poor
Soil-related factors: Depth, slope, permeability

Management considerations:

- Depth to bedrock may limit excavations.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The design of septic systems should consider the slow permeability of the soil.

The Sharps soils in this unit are taxadjuncts to the Sharps series because of reduced precipitation. This difference, however, does not significantly affect the use or management of the soils.

116—Sharps-Cahona complex, 6 to 12 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Sharps soil and similar inclusions: 45 percent

Cahona soil and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Sharps soil

Landscape position: Hills and mesas

Slope range: 6 to 12 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 9 inches—light reddish brown loam

9 to 19 inches—reddish brown clay loam

19 to 30 inches—light reddish brown and pink loam

30 inches—shale and soft sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Cahona soil

Landscape position: Hills and mesas

Slope range: 6 to 12 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 5 inches—reddish brown loam

5 to 25 inches—yellowish red clay loam

25 to 60 inches—pinkish white and pinkish gray loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Gladel soils on hills and mesas

Similar Inclusions

Wetherill soils on mesas and hills

Pulpit soils on mesas and hills

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community on this unit: Western wheatgrass, muttongrass, big sagebrush, black sagebrush, galleta, bottlebrush squirreltail

Potential annual production of air-dry vegetation on the Sharps soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Cahona soil: 1,000 pounds per acre

Soil-related factors: Depth, slope

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Poor

Soil-related factors: Slope, depth

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.
- Depth to bedrock should be considered in making cuts and fills.
- Low available water capacity limits crop production.
- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Fair

Soil-related factors: Depth, shrink-swell, slope

Management considerations:

- Depth to bedrock may limit excavations.
- Moderate shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

117—Sharps-Pulpit complex, 2 to 6 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Sharps soil and similar inclusions: 45 percent

Pulpit soil and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Sharps soil

Landscape position: Hills and mesas

Slope range: 2 to 6 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 9 inches—light reddish brown loam

9 to 19 inches—reddish brown clay loam

19 to 30 inches—light reddish brown or pink loam

30 inches—shale and soft sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Pulpit soil

Landscape position: Hills and mesas

Slope range: 2 to 6 percent

Parent material: Kind—eolian material; source—sandstone

Typical Profile

0 to 10 inches—reddish brown loam

10 to 20 inches—reddish brown clay loam

20 to 30 inches—reddish brown loam

30 to 36 inches—pink fine sandy loam

36 inches—hard Dakota Sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Moderate

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Wetherill soils on hills and mesas

Cahona soils on hills and mesas

Gladel soils on hills and mesas

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community on this unit: Western wheatgrass, muttongrass, big sagebrush, bottlebrush squirreltail

Potential annual production of air-dry vegetation on the Sharps soil: 900 pounds per acre

Potential annual production of air-dry vegetation on the Pulpit soil: 800 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low annual precipitation limits forage production.
- Low available water capacity limits forage production.

Cropland*Suitability:* Fair*Soil-related factors:* Depth, slope*Management considerations:*

- Depth to bedrock should be considered in making cuts and fills.
- The steep slopes should be managed to prevent excessive erosion.
- Low available water capacity limits crop production.

Building Site Development*Suitability:* Poor*Soil-related factors:* Depth*Management considerations:*

- Depth to bedrock may limit excavations.

118—Sharps-Pulpit complex, 6 to 12 percent slopes***Setting****Landscape position:* Hills and mesas*Parent material:* Kind—eolian material; source—sandstone*Native plant community:* Sagebrush and grasses*Elevation:* 6,200 to 7,400 feet*Mean annual temperature:* 46 to 50 degrees F*Mean annual precipitation:* 13 to 16 inches*Frost-free period:* 100 to 120 days***Composition***

Sharps soil and similar inclusions: 45 percent

Pulpit soil and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Sharps soil*Landscape position:* Hills and mesas*Slope range:* 6 to 12 percent*Parent material:* Kind—eolian material; source—sandstone***Typical Profile***

0 to 9 inches—light reddish brown loam

9 to 19 inches—reddish brown clay loam

19 to 30 inches—light reddish brown and pink loam

30 inches—shale and soft sandstone

Soil Properties*Depth class:* Moderately deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Low*Potential rooting depth:* 20 to 40 inches*Flooding:* None*Runoff:* High*Hazard of water erosion:* Severe*Hazard of wind erosion:* Moderate*Shrink-swell potential:* Low***Characteristics of the Pulpit soil****Landscape position:* Hills and mesas*Slope range:* 6 to 12 percent*Parent material:* Kind—eolian material; source—sandstone***Typical Profile***

0 to 10 inches—reddish brown loam

10 to 20 inches—reddish brown clay loam

20 to 30 inches—reddish brown loam

30 to 36 inches—pink fine sandy loam

36 inches—hard Dakota Sandstone

Soil Properties*Depth class:* Moderately deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Moderate*Potential rooting depth:* 20 to 40 inches*Flooding:* None*Runoff:* High*Hazard of water erosion:* Severe*Hazard of wind erosion:* Moderate*Shrink-swell potential:* Low***Included Areas****Contrasting Inclusions*

Wetherill soils on hills and mesas

Cahona soils on hills and mesas

Gladel soils on hills and mesas

Major Uses

Cropland and livestock grazing

Major Management Factors**Rangeland***Suitability:* Fair*Dominant vegetation in the potential plant community on this unit:* Western wheatgrass, muttongrass, big sagebrush, bottlebrush squirreltail*Potential annual production of air-dry vegetation on the Sharps soil:* 900 pounds per acre*Potential annual production of air-dry vegetation on the Pulpit soil:* 800 pounds per acre*Soil-related factors:* Depth

Management considerations:

- Low annual precipitation limits forage production.
- Low available water capacity limits forage production.

Cropland*Suitability:* Poor*Soil-related factors:* Slope, depth*Management considerations:*

- The steep slopes should be managed to prevent excessive erosion.
- Depth to bedrock should be considered in making cuts and fills.
- Low available water capacity limits crop production.

Building Site Development*Suitability:* Poor*Soil-related factors:* Depth, slope*Management considerations:*

- Depth to bedrock may limit excavations.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

119—Sheek-Archuleta complex, 6 to 25 percent slopes***Setting****Landscape position:* Hills and canyons*Parent material:* Kind—colluvium, residuum, and slope alluvium; source—sandstone and shale*Native plant community:* Ponderosa pine and Gambel's oak woodland*Elevation:* 7,100 to 8,500 feet*Mean annual temperature:* 43 to 47 degrees F*Mean annual precipitation:* 15 to 20 inches*Frost-free period:* 80 to 100 days***Composition***

Sheek soil and similar inclusions: 50 percent

Archuleta soil and similar inclusions: 35 percent

Contrasting inclusions: 15 percent

Characteristics of the Sheek soil*Landscape position:* Hills and canyons*Slope range:* 6 to 25 percent*Parent material:* Kind—colluvium and slope alluvium; source—sandstone and shale***Typical Profile***

0 to 1 inch—moderately decomposed leaves and pine needles

1 to 5 inches—brown very stony sandy loam

5 to 60 inches—brown very stony clay loam

Soil Properties*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Low*Potential rooting depth:* 60 inches or more*Flooding:* None*Runoff:* High*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Slight*Shrink-swell potential:* Low***Characteristics of the Archuleta soil****Landscape position:* Hills and canyons*Slope range:* 6 to 25 percent*Parent material:* Kind—slope alluvium and residuum; source—sandstone and shale***Typical Profile***

0 to 1 inch—slightly decomposed leaves

1 to 6 inches—grayish brown very stony sandy loam

6 to 9 inches—light brownish gray stony sandy loam

9 to 18 inches—light brownish gray stony clay loam

18 inches—interbedded sandstone and shale

Soil Properties*Depth class:* Shallow*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Very low*Potential rooting depth:* 10 to 20 inches*Flooding:* None*Runoff:* Very high*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Slight*Shrink-swell potential:* Low***Included Areas******Contrasting Inclusions***

Hesperus soils on hills

Northrim soils on hills

Rock outcrop

Similar Inclusions

Sanchez soils on hills

Major Use

Wildlife habitat

Major Management Factors**Rangeland***Suitability:* Poor

Dominant vegetation in the potential plant community on this unit: Ponderosa pine, Rocky Mountain juniper, Gambel's oak, mountain muhly, Arizona fescue, prairie Junegrass

Potential annual production of air-dry vegetation on the Sheek soil: 400 pounds per acre

Potential annual production of air-dry vegetation on the Archuleta soil: 350 pounds per acre

Soil-related factors: Slope, depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

120—Sheek-Archuleta-Rock outcrop complex, 25 to 80 percent slopes,

Setting

Landscape position: Hills and canyons

Parent material: Kind—colluvium, residuum, and slope alluvium; source—sandstone and shale

Native plant community: Ponderosa pine and Gambel's oak woodland

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Sheek soil and similar inclusions: 35 percent

Archuleta soil and similar inclusions: 30 percent

Rock outcrop and similar inclusions: 20 percent

Contrasting inclusions: 15 percent

Characteristics of the Sheek soil

Landscape position: Hills and canyons

Slope range: 25 to 80 percent

Parent material: Kind—colluvium and slope alluvium; source—sandstone and shale

Typical Profile

0 to 1 inch—moderately decomposed leaves and pine needles

1 to 5 inches—brown very stony sandy loam

5 to 60 inches—brown very stony clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Characteristics of the Archuleta soil

Landscape position: Hills and canyons

Slope range: 25 to 80 percent

Parent material: Kind—slope alluvium and residuum; source—sandstone and shale

Typical Profile

0 to 1 inch—slightly decomposed leaves

1 to 6 inches—grayish brown very stony sandy loam

6 to 9 inches—light brownish gray stony sandy loam

9 to 18 inches—light brownish gray stony clay loam

18 inches—interbedded sandstone and shale

Soil Properties

Depth class: Shallow

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very low

Potential rooting depth: 10 to 20 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Characteristics of the Rock outcrop

Landscape position: Canyons and hills

Slope range: 25 to 80 percent

Parent material: Kind—residuum; source—sandstone and shale

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions
Hesperus soils on hills
Northrim soils on hills

Similar Inclusions
Sanchez soils on hills

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community on this unit: Ponderosa pine, Gambel's oak, mountain muhly, Arizona fescue, prairie Junegrass

Potential annual production of air-dry vegetation on the Sheek soil: 400 pounds per acre

Potential annual production of air-dry vegetation on the Archuleta soil: 350 pounds per acre

Soil-related factors: Slope, depth

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, depth

Management considerations:

- Low available water capacity limits forage production.

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

121—Sheek-Archuleta-Rock outcrop complex, 25 to 80 percent slopes, north aspect,

Setting

Landscape position: Hills and canyons

Parent material: Kind—colluvium, residuum, and slope alluvium; source—sandstone and shale

Native plant community: Douglas fir woodland

Elevation: 7,100 to 8,500 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Sheek soil and similar inclusions: 40 percent

Archuleta soil and similar inclusions: 25 percent

Rock outcrop and similar inclusions: 20 percent

Contrasting inclusions: 15 percent

Characteristics of the Sheek soil

Landscape position: Hills and canyons

Slope range: 25 to 80 percent

Parent material: Kind—colluvium and slope alluvium; source—sandstone and shale

Typical Profile

0 to 1 inch—moderately decomposed leaves and pine needles

1 to 5 inches—brown very stony sandy loam

5 to 60 inches—brown very stony clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Characteristics of the Archuleta soil

Landscape position: Hills and canyons

Slope range: 25 to 80 percent

Parent material: Kind—residuum and slope alluvium; source—sandstone and shale

Typical Profile

0 to 1 inch—slightly decomposed leaves and twigs

1 to 6 inches—grayish brown very stony sandy loam

6 to 9 inches—light brownish gray stony sandy loam
 9 to 18 inches—light brownish gray stony clay loam
 18 inches—interbedded sandstone and shale

Soil Properties

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low
Potential rooting depth: 10 to 20 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Slight
Shrink-swell potential: Low

Characteristics of the Rock outcrop

Landscape position: Canyons and hills
Slope range: 25 to 80 percent
Parent material: Kind—residuum; source—sandstone and shale

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions
 Hesperus soils on hills
 Northrim soils on hills

Similar Inclusions
 Sanchez soils on hills

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor
Dominant vegetation in the potential plant community on this unit: Douglas fir, Gambel's oak, mountain muhly, Arizona fescue, prairie Junegrass, and scattered ponderosa pine at lower elevations
Potential annual production of air-dry vegetation on the Sheek soil: 550 pounds per acre
Potential annual production of air-dry vegetation on the Archuleta soil: 500 pounds per acre
Soil-related factors: Slope, depth
Management considerations:
 • Steep slopes limit livestock use to areas of less slope.

- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable
Soil-related factors: Slope, depth

Building Site Development

Suitability: Poor
Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

122—Sheppard fine sand, 1 to 6 percent slopes

Setting

Landscape position: Dunes, alluvial fans, and terraces
Parent material: Kind—eolian material; source—sandstone
Native plant community: Desert shrubs and grasses
Elevation: 5,000 to 5,700 feet
Mean annual temperature: 52 to 56 degrees F
Mean annual precipitation: 8 to 10 inches
Frost-free period: 135 to 160 days

Composition

Sheppard soil and similar inclusions: 90 percent
 Contrasting inclusions: 10 percent

Typical Profile

0 to 7 inches—light brown fine sand
 7 to 60 inches—brown fine sand

Soil Properties

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: Low
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very low
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe
Shrink-swell potential: Low

Included Areas*Contrasting Inclusions*

Romberg soils on hills
Battlerock soils on terraces

Similar Inclusions

Mack soils on alluvial fans

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Poor

Dominant vegetation in the potential plant community:

Alkali sacaton, fourwing saltbush, Indian ricegrass, sand dropseed, mesa dropseed, galleta

Potential annual production of air-dry vegetation: 550 pounds per acre

Soil-related factors: Available water capacity

Management considerations:

- Low available water capacity limits forage production.
- Low annual precipitation limits forage production.

Cropland

Suitability: Poor

Soil-related factors: Available water capacity

Management considerations:

- Low available water capacity limits crop production.
- Low annual precipitation limits cropping systems.

Building Site Development

Suitability: Fair

Soil-related factors: Permeability

Management considerations:

- The design of septic systems should consider the rapid permeability of the soil.

123—Sideshow silty clay loam, 0 to 3 percent slopes**Setting**

Landscape position: Alluvial fans and terraces

Parent material: Kind—alluvium; source—Mancos Shale

Native plant community: Greasewood, desert shrubs and grasses

Elevation: 6,000 to 7,500 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Sideshow soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 3 inches—brown silty clay loam

3 to 60 inches—brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas*Contrasting Inclusions*

Zyme soils on knobs

Sideslide soils in drainageways

Areas of gullied land

Similar Inclusions

Sideshow soils on steeper slopes

Major Uses

Cropland and livestock grazing

Major Management Factors**Rangeland**

Suitability: Poor

Dominant vegetation in the potential plant community:

Alkali sacaton, western wheatgrass, greasewood, fourwing saltbush

Potential annual production of air-dry vegetation: 300 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Poor

Soil-related factors: Salinity, permeability

Management considerations:

- The presence of high salt concentrations adversely affects crop production.
- Slow permeability should be considered in irrigation design.

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability, corrosivity

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.
- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.

124—Sideshow silty clay loam, 3 to 6 percent slopes

Setting

Landscape position: Hills, alluvial fans, and terraces

Parent material: Kind—alluvium; source—Mancos Shale

Native plant community: Sagebrush and grasses

Elevation: 6,000 to 7,500 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Sideshow soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 3 inches—brown silty clay loam

3 to 60 inches—brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

Zigzag soils on knobs

Sideslide soils on alluvial fans

Ramper soils on alluvial fans

Similar Inclusions

Sideshow soils with clayey surfaces on alluvial fans

Major Uses

Livestock grazing and cropland

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Western wheatgrass, big sagebrush, Indian ricegrass

Potential annual production of air-dry vegetation: 900 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Fair

Soil-related factors: Slope, slow permeability

Management considerations:

- Slow permeability should be considered in irrigation design.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.

125—Sideshow silty clay loam, 6 to 12 percent slopes

Setting

Landscape position: Hills and alluvial fans

Parent material: Kind—alluvium; source—Mancos Shale

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,500 feet

Mean annual air temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Sideshow soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 3 inches—brown silty clay loam

3 to 60 inches—brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

Zigzag soils on knobs

Ramper soils on alluvial fans

Similar Inclusions

Sideslide soils on alluvial fans and in drainageways

Major Uses

Livestock grazing and cropland

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Western wheatgrass, big sagebrush, Indian ricegrass

Potential annual production of air-dry vegetation: 900 pounds per acre

Management considerations:

- Brush control may be needed to maintain forage production

Cropland

Suitability: Poor

Soil-related factors: Slope, permeability

Management considerations:

- Slow permeability should be considered in irrigation design
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability, and slope

Management considerations:

- High shrink-swell potential must be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.
- Steepness of slope will increase the hazard of erosion and must be considered in construction.

126—Sideshow-Zigzag complex, 3 to 25 percent slopes

Setting

Landscape position: Knobs, hills, alluvial fans, and ridges

Parent material: Kind—residuum and alluvium; source—Mancos Shale

Native plant community: Scattered pinyon and juniper, intermingled with grasses and shrubs

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Sideshow soil and similar inclusions: 45 percent

Zigzag soil and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Sideshow soil

Landscape position: Alluvial fans and hills

Slope range: 3 to 25 percent

Parent material: Kind—alluvium; source—Mancos Shale

Typical Profile

0 to 3 inches—brown silty clay loam

3 to 60 inches—brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: High

Characteristics of the Zigzag soil

Landscape position: Knobs, ridges, and hills
Slope range: 3 to 25 percent
Parent material: Kind—residuum; source—Mancos Shale

Typical Profile

0 to 1 inch—light brownish gray very channery clay loam
 1 to 5 inches—light brownish gray clay loam
 5 to 19 inches—light brownish gray clay
 19 inches—weathered Mancos Shale

Soil Properties

Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Potential rooting depth: 6 to 20 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Slight
Shrink-swell potential: High

Included Areas

Contrasting Inclusions
 Wauquie soils on hills
 Dolcan soils on hills
 Rock outcrop

Similar Inclusions
 Soils that have bedrock between 20 and 60 inches

Major Uses

Wildlife habitat and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair
Dominant vegetation in the potential plant community on the Sideshow soil: Western wheatgrass, big sagebrush, Indian ricegrass

Dominant vegetation in the potential plant community on the Zigzag soil: Scattered pinyon, juniper, big sagebrush, Indian ricegrass, mountain mahogany, antelope bitterbrush
Potential annual production of air-dry vegetation on the Sideshow soil: 900 pounds per acre
Potential annual production of air-dry vegetation on the Zigzag soil: 400 pounds per acre
Soil-related factors: Depth, slope

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable
Soil-related factors: Slope, depth

Building Site Development

Suitability: Poor
Soil-related factors: Slope, permeability, depth, shrink-swell

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

127—Sideslide silty clay loam, 3 to 9 percent slopes

Setting

Landscape position: Alluvial fans, hills, and drainageways
Parent material: Kind—alluvium and slope alluvium; source—Mancos Shale
Native plant community: Sedges and salt grasses
Elevation: 6,200 to 7,400 feet
Mean annual temperature: 46 to 50 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 120 days

Composition

Sideslide and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 3 inches—pale brown silty clay loam
3 to 60 inches—light brownish gray silty clay loam or clay, with yellowish brown iron accumulations

Soil Properties

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 6 to 24 inches

Flooding: None

Water table: 6 to 24 inches

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

Zigzag soils on hills

Ramper soils on alluvial fans

Similar Inclusions

Sideshow soils on alluvial fans

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:

Alkali sacaton, inland saltgrass, western wheatgrass, sedges, rushes

Potential annual production of air-dry vegetation:

2,000 pounds per acre

Soil-related factors: High water table

Cropland

Suitability: Poor

Soil-related factors: Water table

Management considerations:

- A high water table limits crop selection.

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, water table, permeability

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.
- The presence of a high water table seriously affects development.

128—Stephouse-Rock outcrop complex, 3 to 10 percent slopes

Setting

Landscape position: Mesas and ridges

Parent material: Kind—residuum; source—sandstone and shale

Native plant community: Pinyon and juniper woodland

Elevation: 6,800 to 7,500 feet

Mean annual temperature: 47 to 50 degrees F

Mean annual precipitation: 16 to 18 inches

Frost-free period: 130 to 150 days

Composition

Stephouse soil and similar inclusions: 55 percent

Rock outcrop and similar inclusions: 25 percent

Contrasting inclusions: 20 percent

Characteristics of the Stephouse soil

Landscape position: Mesas and ridges

Slope range: 3 to 10 percent

Parent material: Kind—residuum; source—sandstone and shale

Typical Profile

0 to 1 inch—yellowish brown gravelly fine sandy loam

1 to 8 inches—yellowish brown or pale brown gravelly fine sandy loam

8 to 12 inches—pale brown very gravelly fine sandy loam

12 inches—hard Cliffhouse Sandstone

Soil Properties

Depth class: Shallow and very shallow

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Rock outcrop

Landscape position: Mesas and ridges

Slope range: 3 to 10 percent

Parent material: Kind—residuum; source—sandstone

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions

Roubideau soils on mesas

Similar Inclusions

Longburn soils on mesas and in canyons

Ararab soils on mesas

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community on this unit: Pinyon, Utah juniper, mountain mahogany, Utah serviceberry, muttongrass, antelope bitterbrush, Indian ricegrass

Potential annual production of air-dry vegetation: 450 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, slope

Management considerations:

- Depth to bedrock may limit excavations.

- The presence of shallow bedrock may adversely affect septic systems.

- Steepness of slope will increase the hazard of erosion and should be considered in construction.

129—Torriorthents, 12 to 65 percent slopes

Setting

Landscape position: Terraces, escarpments, and hills

Parent material: Kind—alluvium; source—mixed

Native plant community: Desert shrubs and grasses

Elevation: 5,000 to 6,200 feet

Mean annual temperature: 50 to 56 degrees F

Mean annual precipitation: 8 to 13 inches

Frost-free period: 120 to 160 days

Composition

Torriorthents and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

These soils are highly variable.

0 to 4 inches—very pale brown extremely stony sandy loam

4 to 14 inches—very pale brown very stony silty clay loam

14 inches—soft Mancos Shale

Soil Properties

Depth class: Very shallow to very deep

Drainage class: Well to somewhat excessively drained

Permeability: Moderately slow to moderately rapid

Available water capacity: Very low to low

Potential rooting depth: 6 to 60 inches or more

Flooding: None

Runoff: Low to very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Battlerock soils on terraces and flood plains

Mack soils on terraces

Similar Inclusions

Fluvents on flood plains

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Poor

Dominant vegetation in the potential plant community:

Galleta, shadscale, salina wildrye, alkali sacaton

Potential annual production of air-dry vegetation: 300 pounds per acre

Soil-related factors: Slope, stones

Management considerations:

- Low annual precipitation limits forage production.
- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, stones

Building Site Development

Suitability: Poor

Soil-related factors: Slope, depth

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

130—Torriorthents-Badland complex, 25 to 100 percent slopes**Setting**

Landscape position: Escarpments, canyons, and hills

Parent material: Kind—colluvium and residuum; source—shale and sandstone

Native plant community: A sparse stand of desert shrubs and grasses

Elevation: 5,000 to 7,000 feet

Mean annual temperature: 50 to 56 degrees F

Mean annual precipitation: 8 to 16 inches

Frost-free period: 120 to 160 days

Composition

Torriorthents and similar inclusions: 55 percent

Badland and similar inclusions: 30 percent

Contrasting inclusions: 15 percent

Characteristics of the Torriorthents

Landscape position: Escarpments, canyons, and hills

Slope range: 25 to 100 percent

Parent material: Kind—colluvium and residuum; source—sandstone and shale

Typical Profile

0 to 4 inches—very pale brown silty clay loam

4 to 14 inches—very pale brown silty clay loam

14 inches—soft Mancos Shale

Soil Properties

Depth class: Very shallow to very deep

Drainage class: Well drained

Permeability: Very slow to moderately slow

Available water capacity: Very low to high

Potential rooting depth: 6 to 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: High

Characteristics of the Badland

Landscape position: Escarpments, canyons, and hills

Slope range: 25 to 100 percent

Parent material: Kind—residuum; source—shale

Badland consists of barren shale exposures that occur as hills, knobs, and cliffs.

Included Areas

Contrasting Inclusions

Small areas of developed soils on hills, fans, and drainageways

Similar Inclusions

Rock outcrop

Major Use

Wildlife habitat

Major Management Factors**Rangeland**

Suitability: Very poor

Dominant vegetation in the potential plant community on the Torriorthents soil: Shadscale, alkali sacaton, galleta, Indian ricegrass

Potential annual production of air-dry vegetation on the Torriorthents soil: 300 pounds per acre

Management considerations:

- Low available water capacity limits forage production.
- Low annual precipitation limits forage production.

Cropland*Suitability:* Unsuitable*Soil-related factors:* Slope, depth**Building Site Development***Suitability:* Poor*Soil-related factors:* Slope, depth, shrink-swell, permeability*Management considerations:*

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.

131—Tragmon-Sheek complex, 12 to 25 percent slopes***Setting****Landscape position:* Hills, canyons, and alluvial fans*Parent material:* Kind—colluvium and slope alluvium; source—sandstone and shale*Native plant community:* Gambel's oak woodland*Elevation:* 7,100 to 8,500 feet*Mean annual temperature:* 43 to 47 degrees F*Mean annual precipitation:* 15 to 20 inches*Frost-free period:* 80 to 100 days***Composition***

Tragmon soil and similar inclusions: 50 percent

Sheek soil and similar inclusions: 35 percent

Contrasting inclusions: 15 percent

Characteristics of the Tragmon soil*Landscape position:* Hills, alluvial fans, and canyons*Slope range:* 12 to 20 percent*Parent material:* Kind—colluvium, slope alluvium, and alluvium; source—sandstone and shale***Typical Profile***

0 to 5 inches—brown sandy loam

5 to 11 inches—brown loam

11 to 40 inches—pale brown and yellowish brown loam

40 to 60 inches—light yellowish brown loam

Soil Properties*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* Moderate*Potential rooting depth:* More than 60 inches*Flooding:* None*Runoff:* High*Hazard of water erosion:* Severe*Hazard of wind erosion:* Moderate*Shrink-swell potential:* Low***Characteristics of the Sheek soil****Landscape position:* Hills, alluvial fans, and canyons*Slope range:* 12 to 25 percent*Parent material:* Kind—colluvium and slope alluvium; source—sandstone and shale***Typical Profile***

0 to 4 inches—yellowish brown cobbly loam

4 to 16 inches—yellowish brown very cobbly clay loam

16 to 42 inches—yellowish brown very gravelly clay loam

42 to 60 inches—light yellowish brown very stony clay loam

Soil Properties*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Moderate*Potential rooting depth:* 60 inches or more*Flooding:* None*Runoff:* Very high*Hazard of water erosion:* Severe*Hazard of wind erosion:* Moderate*Shrink-swell potential:* Low***Included Areas****Contrasting Inclusions*

Archuleta soils on ridges

Rock outcrop

Northrim soils on hills

Similar Inclusions

Hesperus soils on alluvial fans

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community on this unit: Gambel's oak, serviceberry, mountain brome, prairie Junegrass

Potential annual production of air-dry vegetation on the Tragmon soil: 2,200 pounds per acre

Potential annual production of air-dry vegetation on the Sheek soil: 2,000 pounds per acre

Soil-related factors: Slope

Management considerations:

- Brush control may be needed to maintain forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, stones

Building Site Development

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.

132—Typic Argiaquolls, 0 to 3 percent slopes

Setting

Landscape position: Drainageways

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Sedges and grasses

Elevation: 7,400 to 8,000 feet

Mean annual temperature: 43 to 47 degrees F

Mean annual precipitation: 15 to 20 inches

Frost-free period: 80 to 100 days

Composition

Typic Argiaquolls and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 4 inches—very dark grayish brown loam

4 to 10 inches—very dark grayish brown silty clay loam

10 to 24 inches—dark grayish brown silty clay loam

24 to 60 inches—brown silty clay loam with yellowish red iron accumulations

Soil Properties

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 12 to 60 inches

Flooding: Occasional

Water table: 12 to 24 inches or more

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Hesperus soils in drainageways

Tragmon soils on alluvial fans

Sheek soils on hills

Similar Inclusions

Pogo soils in drainageways

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:

Sedges, rushes, tufted hairgrass, cattails

Potential annual production of air-dry vegetation:

3,000 pounds per acre

Soil-related factors: Water table

Cropland

Suitability: Poor

Soil-related factors: Water table

- A high water table will limit crop selection

Building Site Development

Suitability: Poor

Soil-related factors: Water table, permeability

Management considerations:

- Presence of a high water table seriously affects development.
- The design of septic systems should consider the slow permeability of the soil.

133—Typic Torriorthents-Rock outcrop complex, 12 to 80 percent slopes

Setting

Landscape position: Canyons, hills, and mesas

Parent material: Kind—colluvium and residuum;
source—shale and sandstone

Native plant community: Desert shrubs, scattered juniper, and grasses

Elevation: 5,000 to 5,700 feet

Mean annual temperature: 52 to 56 degrees F

Mean annual precipitation: 8 to 10 inches

Frost-free period: 135 to 160 days

Composition

Typic Torriorthents and similar inclusions: 60 percent

Rock outcrop and similar inclusions: 25 percent

Contrasting inclusions: 15 percent

Characteristics of the Typic Torriorthents

Landscape position: Canyons, hills, and mesas

Slope range: 12 to 80 percent

Parent material: Kind—colluvium and residuum;
source—shale and sandstone

Reference Profile

0 to 3 inches—light brown extremely stony sandy loam

3 to 16 inches—light brown to light gray very stony clay loam and very stony silty clay loam

16 inches—soft shale

Soil Properties

Depth class: Very shallow to very deep

Drainage class: Well drained

Permeability: Moderately slow to moderately rapid

Available water capacity: Very low to low

Potential rooting depth: 6 to 60 inches or more

Flooding: None

Runoff: Low to very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Low to high

Landscape position: Canyons, hills, and mesas

Slope range: 12 to 80 percent

Parent material: Kind—residuum; source—sandstone and shale

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions

Badland

Uzacol soils on alluvial fans

Zwicker soils on hills

Similar Inclusions

Claysprings soils on ridges and hills

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community on this unit: Galleta, shadscale, salina wildrye, alkali sacaton, scattered juniper

Potential annual production of air-dry vegetation on this unit: 200 to 500 pounds per acre

Soil-related factors: Depth, slope, stones

Management considerations:

- Low annual precipitation limits forage production.
- Steep slopes limit livestock use to areas of less slope.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, depth

Building Site Development

Suitability: Poor

Soil-related factors: Slope, depth, permeability

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- The design of septic systems should consider the slow permeability of the soil.

134—Umbarg-Winner-Tesajo complex, 0 to 2 percent slopes

Setting

Landscape position: Flood plains

Parent material: Kind—alluvium; source—mixed

Native plant community: River bottom

Elevation: 6,200 to 7,000 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Umbarg soil and similar inclusions: 35 percent

Winner soil and similar inclusions: 30 percent

Tesajo soil and similar inclusions: 20 percent

Contrasting inclusions: 15 percent

Characteristics of the Umbarg soil

Landscape position: Flood plains

Slope range: 0 to 2 percent

Parent material: Kind—alluvium; source—mixed

Typical Profile

0 to 2 inches—dark grayish brown loam

2 to 12 inches—dark grayish brown clay loam

12 to 33 inches—dark grayish brown loam

33 to 42 inches—grayish brown loam with strong brown masses of iron accumulation

42 to 60 inches—grayish brown very gravelly loam with strong brown masses of iron accumulation

Soil Properties

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderately slow

Available water capacity: Moderate

Potential rooting depth: 36 to 60 inches

Flooding: Rare

Water table: 36 to 60 inches

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Characteristics of the Winner soil

Landscape position: Flood plains

Slope range: 0 to 2 percent

Parent material: Kind—alluvium; source—mixed

Typical Profile

0 to 4 inches—dark grayish brown clay loam with yellowish brown masses of iron accumulation

4 to 31 inches—dark grayish brown or brown clay loam with red or yellowish red masses of iron accumulation

31 to 60 inches—brown very stony sandy clay loam with yellowish brown masses of iron accumulation

Soil Properties

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Moderately slow

Available water capacity: Moderate

Potential rooting depth: 6 to 24 inches

Flooding: Rare

Water table: 6 to 24 inches

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Characteristics of the Tesajo soil

Landscape position: Flood plains

Slope range: 0 to 2 percent

Parent material: Kind—alluvium; source—mixed

Typical Profile

0 to 3 inches—very dark grayish brown gravelly sandy loam

3 to 36 inches—dark grayish brown or grayish brown very cobbly sandy loam to extremely cobbly loamy sand

36 to 60 inches—dark grayish brown extremely cobbly sandy loam with strong brown masses of iron accumulation

Soil Properties

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderately rapid

Available water capacity: Low

Potential rooting depth: 48 to 60 inches

Flooding: Rare

Water table: More than 48 inches

Runoff: Low

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Pogo soils in drainageways and flood plains

Ustic Torrifluvents in drainageways

Ackmen soils in drainageways

Similar Inclusions

Soils that have more stones on the surface

Major Uses

Cropland and wildlife habitat

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community on this unit: Mountain brome, sedges, tufted hairgrass, iris

Potential annual production of air-dry vegetation on the Umbarg soil: 2,600 pounds per acre

Potential annual production of air-dry vegetation on the Winner soil: 2,000 pounds per acre

Potential annual production of air-dry vegetation on the Tesajo soil: 2,000 pounds per acre

Cropland

Suitability: Poor

Soil-related factors: Water table

Management considerations:

- A high water table limits crop selection.

Building Site Development

Suitability: Poor

Soil-related factors: Flooding, water table

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.
- The presence of a high water table seriously affects development.

135—Ustic Torrifuvents, 0 to 3 percent slopes

Setting

Landscape position: Flood plains and drainageways

Parent material: Kind—alluvium; source—mixed

Native plant community: Big sagebrush and grasses

Elevation: 5,400 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Ustic Torrifuvents and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Reference Profile

0 to 3 inches—pale brown loamy sand

3 to 11 inches—pale brown fine sandy loam

11 to 60 inches—brown and pale brown stratified very gravelly sandy loam to loamy sand

Soil Properties

Depth class: Very deep

Drainage class: Somewhat excessively drained

Permeability: Moderately rapid

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: Rare

Runoff: Low

Hazard of water erosion: Slight

Hazard of wind erosion: Severe

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Romberg soils on alluvial fans and hills

Gullied land

Similar Inclusions

Mikim soils on alluvial fans

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community: Alkali sacaton, galleta, western wheatgrass, big sagebrush

Potential annual production of air-dry vegetation: 800 pounds per acre

Management considerations:

- Low annual precipitation limits forage production.
- Low available water capacity limits forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Poor

Soil-related factors: Salinity

Management considerations:

- The presence of high salt concentrations adversely affects crop production.
- Low available water capacity limits crop production.

Building Site Development

Suitability: Poor

Soil-related factors: Flooding, salinity

Management considerations:

- The hazard of flooding limits the suitability of this unit for use as a building site.
- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.

136—Ustic Torriorthents-Gullied land complex, 1 to 60 percent slopes

Setting

Landscape position: Alluvial fans, drainageways, terraces, escarpments, and flood plains

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Sagebrush and grasses

Elevation: 5,400 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Ustic Torriorthents and similar inclusions: 45 percent

Gullied land and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Ustic Torriorthents

Landscape position: Alluvial fans, drainageways, flood plains, terraces, and escarpments

Slope range: 1 to 60 percent

Parent material: Kind—alluvium; source—sandstone and shale

Typical Profile

0 to 7 inches—variable surface textures

7 to 60 inches—variable sandy loam to clay loam

Soil Properties

Depth class: Very deep

Drainage class: Well or somewhat excessively drained

Permeability: Moderately slow to moderately rapid

Available water capacity: Low to high

Potential rooting depth: 60 inches or more

Flooding: Rare

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Characteristics of the Gullied land

Landscape position: Escarpments and drainageways

Slope range: 25 to 60 percent

Parent material: Kind—alluvium; source—sandstone and shale

Gullied land consists of deep erosional channels that occur as gullies, arroyos, and drainageways.

Included Areas

Contrasting Inclusions

Lillings soils on terraces and alluvial fans

Mikim soils on alluvial fans

Sideshow soils on alluvial fans

Major Use

Livestock grazing

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community on this unit: Alkali sacaton, big sagebrush, western wheatgrass, galleta, greasewood

Potential annual production of air-dry vegetation on the Torriorthents soil: 700 pounds per acre

Soil-related factors: Slope

Management considerations:

- Steep slopes limit livestock use to areas of less slope.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, gullies

Building Site Development

Suitability: Poor

Soil-related factors: Slope, depth, flooding

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The hazard of flooding limits the suitability of this unit for use as a building site.

- Some areas are severely gullied and are no longer subject to flooding.

137—Ustorthents, 12 to 65 percent slopes

Setting

Landscape position: Terrace escarpments, terraces, and hills

Parent material: Kind—eolian material, residuum, and alluvium; source—mixed

Native plant community: Pinyon and juniper woodland

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Ustorthents and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

These soils are highly variable.

0 to 3 inches—brown very cobbly loam

3 to 14 inches—brown very cobbly loam

14 to 36 inches—brown extremely cobbly loam

36 to 60 inches—brown very stony sandy loam

Soil Properties

Depth class: Shallow to very deep

Drainage class: Well or somewhat excessively drained

Permeability: Moderately slow to moderately rapid

Available water capacity: Low to moderate

Potential rooting depth: 10 to 60 inches or more

Flooding: None

Runoff: High to very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Collide soils on terraces

Sideshow soils on alluvial fans

Herm soils on hills

Similar Inclusions

Zigzag soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community:

Pinyon, juniper, muttongrass, big sagebrush, western wheatgrass, Indian ricegrass

Potential annual production of air-dry vegetation: 600 pounds per acre

Soil-related factors: Slope, depth, stones

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, stones

Building Site Development

Suitability: Poor

Soil-related factors: Slope, depth

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

138—Uzacol-Zwicker-Claysprings complex, 3 to 12 percent slopes

Setting

Landscape position: Hills, knobs, and ridges

Parent material: Kind—residuum, colluvium, and slope alluvium; source—Morrison Shale

Native plant community: Desert shrubs and grasses

Elevation: 5,000 to 5,700 feet

Mean annual temperature: 52 to 56 degrees F

Mean annual precipitation: 8 to 10 inches

Frost-free period: 135 to 160 days

Composition

Uzacol soil and similar inclusions: 35 percent

Zwicker soil and similar inclusions: 30 percent

Claysprings soil and similar inclusions: 20 percent

Contrasting inclusions: 15 percent

Characteristics of the Uzacol soil

Landscape position: Hills

Slope range: 3 to 9 percent

Parent material: Kind—slope alluvium and residuum;
source—Morrison Shale

Typical Profile

0 to 1 inch—light brown clay loam

1 to 5 inches—light brown clay loam

5 to 31 inches—light brown clay

31 to 45 inches—light reddish brown clay

45 to 59 inches—pink clay

59 inches—soft Morrison Shale

Soil Properties

Depth class: Deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 40 to 60 inches

Flooding: None

Runoff: High

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Zwicker soil

Landscape position: Hills, ridges, and knobs

Slope range: 3 to 12 percent

Parent material: Kind—slope alluvium and colluvium;
source—Morrison Shale

Typical Profile

0 to 1 inch—light brown stony clay loam

1 to 4 inches—light brown clay loam

4 to 17 inches—light brown clay

17 to 32 inches—light brown clay

32 inches—soft Morrison Shale

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Characteristics of the Claysprings soil

Landscape position: Knobs and ridges

Slope range: 3 to 12 percent

Parent material: Kind—residuum; source—Morrison
Shale

Typical Profile

0 to 3 inches—pink very stony clay loam

3 to 9 inches—light reddish brown clay

9 to 18 inches—reddish gray clay

18 inches—soft Morrison Shale

Soil Properties

Depth class: Very shallow and shallow

Drainage class: Well drained

Permeability: Slow

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Slight

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

Rock outcrop

Badland

Battlerock soils on terraces

Recapture soils on alluvial fans

Similar Inclusions

Soils that have more rock fragments on the surface

Major Uses

Wildlife habitat and livestock grazing

Major Management Factors**Rangeland**

Suitability: Very poor

*Dominant vegetation in the potential plant community
on this unit:* Shadscale, galleta, alkali sacaton,
salina wildrye

*Potential annual production of air-dry vegetation on
the Uzacol soil:* 450 pounds per acre

*Potential annual production of air-dry vegetation on
the Zwicker soil:* 350 pounds per acre

*Potential annual production of air-dry vegetation on
the Claysprings soil:* 250 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.
- Low annual precipitation limits forage production.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth, slope, permeability

Building Site Development

Suitability: Poor

Soil-related factors: Shrink-swell, permeability, corrosivity, depth

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- The design of septic systems should consider the slow permeability of the soil.
- Special consideration of building material is needed to compensate for possible corrosion from the saline-alkaline conditions.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.

139—Water***Setting***

Landscape position: Drainageways

Elevation: 5,000 to 8,500 feet

Mean annual precipitation: 8 to 20 inches

Frost-free period: 80 to 160 days

Composition

Man-made and natural bodies of water ranging in size from a few acres to 4,470 acres

140—Wauquie very stony loam, 6 to 25 percent slopes***Setting***

Landscape position: Hills and alluvial fans

Parent material: Kind—colluvium and alluvium; source—mixed

Native plant community: Pinyon and juniper woodland

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Wauquie soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 2 inches—brown very stony loam

2 to 60 inches—brown very stony loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Low

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Low

Included Areas

Contrasting Inclusions

Wetherill soils on hills

Zigzag soils on hills

Similar Inclusions

Sheek soils on hills

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors**Rangeland**

Suitability: Fair

Dominant vegetation in the potential plant community:

Pinyon, Utah juniper, Gambel's oak, mountain mahogany, Indian ricegrass, muttongrass

Potential annual production of air-dry vegetation: 800 pounds per acre

Soil-related factors: Slope, stones

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, stones

Management considerations:

- Surface stones limit equipment use.
- Low available water capacity limits crop production.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development*Suitability:* Poor*Soil-related factors:* Slope*Management considerations:*

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

141—Wauquie-Dolcan complex, 6 to 25 percent slopes***Setting****Landscape position:* Canyons, hills, and alluvial fans*Parent material:* Kind—colluvium, alluvium, and residuum; source—sandstone and shale*Native plant community:* Pinyon and juniper woodland*Elevation:* 6,200 to 7,400 feet*Mean annual temperature:* 46 to 50 degrees F*Mean annual precipitation:* 13 to 16 inches*Frost-free period:* 100 to 120 days***Composition***

Wauquie soil and similar inclusions: 45 percent

Dolcan soil and similar inclusions: 40 percent

Contrasting inclusions: 15 percent

Characteristics of the Wauquie soil*Landscape position:* Canyons, hills, and alluvial fans*Slope range:* 6 to 25 percent*Parent material:* Kind—colluvium and alluvium; source—sandstone and shale***Typical Profile***

0 to 2 inches—brown stony fine sandy loam

2 to 60 inches—brown very cobbly loam

Soil Properties*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* Low*Potential rooting depth:* 60 inches or more*Flooding:* None*Runoff:* High*Hazard of water erosion:* Severe*Hazard of wind erosion:* Moderate*Shrink-swell potential:* Low***Characteristics of the Dolcan soil****Landscape position:* Canyons and hills*Slope range:* 6 to 25 percent*Parent material:* Kind—colluvium and residuum; source—sandstone and shale***Typical Profile***

0 to 2 inches—brown extremely cobbly fine sandy loam

2 to 8 inches—brown cobbly clay loam

8 to 11 inches—reddish brown clay loam

11 inches—soft shale

Soil Properties*Depth class:* Shallow and very shallow*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Very low*Potential rooting depth:* 6 to 20 inches*Flooding:* None*Runoff:* High*Hazard of water erosion:* Severe*Hazard of wind erosion:* Slight*Shrink-swell potential:* Low***Included Areas****Contrasting Inclusions*

Wetherill soils on hills

Gladel soils on hills and mesas

Rock outcrop

Prater soils on alluvial fans and hills

Similar Inclusions

Soils that have fewer rock fragments on the surface

Soils that have hard bedrock

Major Uses

Wildlife habitat and livestock grazing

Major Management Factors**Rangeland***Suitability:* Fair*Dominant vegetation in the potential plant community on this unit:* Pinyon, juniper, mountain mahogany, serviceberry, Gambel's oak, muttongrass*Potential annual production of air-dry vegetation on the Wauquie soil:* 1,000 pounds per acre*Potential annual production of air-dry vegetation on the Dolcan soil:* 500 pounds per acre*Soil-related factors:* Slope, depth, stones*Management considerations:*

- Steep slopes limit livestock use to areas of less slope.
- Low available water capacity limits forage production.



Figure 4.—An area of Fluvaquents-Haplustolls complex, 0 to 5 percent slopes, in the foreground. The canyon sideslopes in the background are in an area of Wauquie-Dolcan-Rock outcrop complex, 25 to 80 percent slopes.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, stones

Building Site Development

Suitability: Poor

Soil-related factors: Slope, permeability, depth

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

142—Wauquie-Dolcan-Rock outcrop complex, 25 to 80 percent slopes

Setting

Landscape position: Canyons, hills, and structural benches (fig. 4)

Parent material: Kind—colluvium and residuum; source—sandstone and shale

Native plant community: Pinyon and juniper woodland

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Wauquie soil and similar inclusions: 40 percent
 Dolcan soil and similar inclusions: 30 percent
 Rock outcrop: 15 percent
 Contrasting inclusions: 15 percent

Characteristics of the Wauquie soil

Landscape position: Canyons, hills, and structural benches
Slope range: 25 to 50 percent
Parent material: Kind—colluvium; source—sandstone and shale

Typical Profile

0 to 2 inches—brown stony fine sandy loam
 2 to 60 inches—brown very cobbly loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Characteristics of the Dolcan soil

Landscape position: Canyons and hills
Slope range: 25 to 80 percent
Parent material: Kind—colluvium and residuum; source—sandstone and shale

Typical Profile

0 to 2 inches—brown extremely cobbly fine sandy loam
 2 to 8 inches—brown cobbly clay loam
 8 to 11 inches—reddish brown clay loam
 11 inches—soft shale

Soil Properties

Depth class: Shallow and very shallow
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low
Potential rooting depth: 6 to 20 inches
Flooding: None
Runoff: Very high
Hazard of water erosion: Severe
Hazard of wind erosion: Slight
Shrink-swell potential: Low

Characteristics of the Rock outcrop

Landscape position: Canyons and hills
Slope range: 25 to 80 percent
Parent material: Kind—residuum; source—sandstone and shale

Rock outcrop consists of barren rock that occurs as ledges and nearly vertical cliffs of sandstone. Rock outcrop also includes areas where the depth to bedrock is less than 4 inches.

Included Areas

Contrasting Inclusions
 Wetherill soils on hills
 Gladel soils on hills
 Ustorthents on hills

Similar Inclusions
 Soils that have fewer rock fragments on the surface
 Soils that have hard bedrock

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor
Dominant vegetation in the potential plant community on this unit: Pinyon, juniper, mountain mahogany, serviceberry, Gambel's oak, muttongrass
Potential annual production of air-dry vegetation on the Wauquie soil: 900 pounds per acre
Potential annual production of air-dry vegetation on the Dolcan soil: 500 pounds per acre

Management considerations:

- Steep slopes limit livestock use to areas of less slope.
- Surface stones limit equipment use.
- Low available water capacity limits forage production.

Cropland

Suitability: Unsuitable
Soil-related factors: Slope, depth, stones

Building Site Development

Suitability: Poor
Soil-related factors: Slope, permeability, depth

Management considerations:

- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.

143—Wetherill loam, 1 to 3 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Wetherill soil and similar inclusions: 90 percent

Contrasting inclusions: 10 percent

Typical Profile

0 to 7 inches—yellowish red loam

7 to 31 inches—yellowish red loam

31 to 48 inches—yellowish red clay loam

48 to 60 inches—light reddish brown loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

Pulpit soils on hills and mesas

Sharps soils on hills and mesas

Similar Inclusions

Cahona soils on hills and mesas

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:

Western wheatgrass, muttongrass, big sagebrush, Indian ricegrass

Potential annual production of air-dry vegetation:

1,200 pounds per acre

Cropland

Suitability: Good

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.

144—Wetherill loam, 3 to 6 percent slopes

Setting

Landscape position: Hills and mesas (fig. 5)

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Wetherill soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 7 inches—yellowish red loam

7 to 31 inches—yellowish red loam

31 to 48 inches—yellowish red clay loam

48 to 60 inches—light reddish brown loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

Pulpit soils on hills and mesas

Sharps soils on hills and mesas

Similar Inclusions

Cahona soils on hills and mesas

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:

Western wheatgrass, muttongrass, big sagebrush, Indian ricegrass

Potential annual production of air-dry vegetation:

1,200 pounds per acre

Cropland

Suitability: Fair

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.



Figure 5.—Irrigated bromegrass-alfalfa hayfield in an area of Wetherill loam, 3 to 6 percent slopes. Mesa Verde Plateau is in the background.

145—Wetherill loam, 6 to 12 percent slopes

Setting

Landscape position: Hills and mesas

Parent material: Kind—eolian material; source—sandstone

Native plant community: Sagebrush and grasses

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Wetherill soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 7 inches—yellowish red loam

7 to 31 inches—yellowish red loam

31 to 48 inches—yellowish red clay loam

48 to 60 inches—light reddish brown loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: High

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

Pulpit soils on hills and mesas

Sharps soils on hills and mesas

Gladel soils on hills and mesas

Similar Inclusions

Cahona soils on hills and mesas

Major Uses

Cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Good

Dominant vegetation in the potential plant community:

Western wheatgrass, muttongrass, big sagebrush, Indian ricegrass

Potential annual production of air-dry vegetation:

1,100 pounds per acre

Cropland

Suitability: Poor

Soil-related factors: Slope

Management considerations:

- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Fair

Soil-related factors: Shrink-swell, slope

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.

146—Yarts clay loam, 1 to 6 percent slopes

Setting

Landscape position: Alluvial fans and terraces

Parent material: Kind—alluvium; source—sandstone and shale

Native plant community: Sagebrush and grasses

Elevation: 5,400 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches

Frost-free period: 120 to 135 days

Composition

Yarts soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 9 inches—reddish brown clay loam

9 to 13 inches—reddish brown sandy loam

13 to 60 inches—yellowish red sandy loam

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Moderate

Potential rooting depth: 60 inches or more

Flooding: None
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions
 Uzacol soils on hills
 Torriorthents on hills and terraces

Similar Inclusions
 Battlerock soils in drainageways and on terraces

Major Uses

Irrigated cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair
Dominant vegetation in the potential plant community:
 Galleta, big sagebrush, blue grama, New Mexico
 feathergrass
Potential annual production of air-dry vegetation: 700
 pounds per acre
Management considerations:

- Low annual precipitation limits forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Fair
Soil-related factors: Slope

Management considerations:

- Low annual precipitation limits cropping systems.
- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Good

147—Yarts fine sandy loam, 1 to 6 percent slopes

Setting

Landscape position: Alluvial fans and terraces
Parent material: Kind—alluvium; source—sandstone and shale
Native plant community: Sagebrush and grasses
Elevation: 5,400 to 6,200 feet
Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 135 days

Composition

Yarts soil and similar inclusions: 85 percent
 Contrasting inclusions: 15 percent

Typical Profile

0 to 9 inches—reddish brown fine sandy loam
 9 to 13 inches—reddish brown sandy loam
 13 to 60 inches—yellowish red sandy loam

Soil Properties

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate
Potential rooting depth: 60 inches or more
Flooding: None
Runoff: Low
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Shrink-swell potential: Low

Included Areas

Contrasting Inclusions
 Uzacol soils on hills
 Torriorthents on hills and terraces

Similar Inclusions
 Battlerock soils in drainageways and on terraces

Major Uses

Irrigated cropland and livestock grazing

Major Management Factors

Rangeland

Suitability: Fair
Dominant vegetation in the potential plant community:
 Galleta, big sagebrush, blue grama, New Mexico
 feathergrass
Potential annual production of air-dry vegetation: 700
 pounds per acre

Management considerations:

- Low annual precipitation limits forage production.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Fair
Soil-related factors: Slope

Management considerations:

- Low annual precipitation limits cropping systems.

- The steep slopes should be managed to prevent excessive erosion.

Building Site Development

Suitability: Good

148—Zau stony loam, 9 to 25 percent slopes

Setting

Landscape position: Hills

Parent material: Kind—residuum; source—sandstone and shale

Native plant community: Shrubs and grasses

Elevation: 7,600 to 8,000 feet

Mean annual temperature: 40 to 44 degrees F

Mean annual precipitation: 18 to 22 inches

Frost-free period: 80 to 100 days

Composition

Zau soil and similar inclusions: 75 percent

Contrasting inclusions: 25 percent

Typical Profile

0 to 2 inches—moderately decomposed leaves

2 to 10 inches—dark grayish brown stony loam

10 to 15 inches—brown clay loam

15 to 19 inches—brown and light yellowish brown clay loam

19 to 29 inches—brown and brownish yellow clay

29 to 34 inches—brown and brownish yellow clay loam

34 inches—weathered sandstone

Soil Properties

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 20 to 40 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

Herm soils on hills

Archuleta soils on hills

Similar Inclusions

Pramiss soils on hills

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Fair

Dominant vegetation in the potential plant community:

Gambel's oak, Arizona fescue, needleandthread

Potential annual production of air-dry vegetation:

2,500 pounds per acre

Soil-related factors: Slope, depth, stones

Management considerations:

- Steep slopes limit livestock use to areas of less slope.
- Low available water capacity limits forage production.
- Surface stones limit equipment use.
- Brush control may be needed to maintain forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope

Building Site Development

Suitability: Poor

Soil-related factors: Slope, depth, permeability

Management considerations:

- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Depth to bedrock may limit excavations.
- The design of septic systems should consider the slow permeability of the soil.

149—Zigzag very channery clay loam, 3 to 25 percent slopes

Setting

Landscape position: Knobs, ridges, and hills

Parent material: Kind—residuum; source—Mancos Shale

Native plant community: Pinyon and juniper woodland

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Zigzag soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 1 inch—light brownish gray very channery clay loam

1 to 5 inches—light brownish gray clay loam

5 to 19 inches—light brownish gray clay

19 inches—weathered Mancos Shale

Soil Properties

Depth class: Very shallow and shallow

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

Sideshow soils on alluvial fans

Rock outcrop

Similar Inclusions

Soils that have fewer coarse fragments on the surface

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community:

Pinyon, juniper, Indian ricegrass, mountain mahogany, western wheatgrass, muttongrass

Potential annual production of air-dry vegetation: 400 pounds per acre

Soil-related factors: Depth, slope

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, permeability, slope, shrink-swell

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

150—Zigzag-Sideshow complex, 25 to 65 percent slopes

Setting

Landscape position: Knobs, hills, alluvial fans, and ridges

Parent material: Kind—residuum and alluvium; source—Mancos Shale

Native plant community: Pinyon and juniper woodland

Elevation: 6,200 to 7,400 feet

Mean annual temperature: 46 to 50 degrees F

Mean annual precipitation: 13 to 16 inches

Frost-free period: 100 to 120 days

Composition

Zigzag soil and similar inclusions: 60 percent

Sideshow soil and similar inclusions: 30 percent

Contrasting inclusions: 10 percent

Characteristics of the Zigzag soil

Landscape position: Knobs, hills, and ridges

Slope range: 25 to 65 percent

Parent material: Kind—residuum; source—Mancos Shale

Typical Profile

0 to 1 inch—light brownish gray very channery clay loam

1 to 5 inches—light brownish gray clay loam

5 to 19 inches—light brownish gray clay

19 inches—weathered Mancos Shale

Soil Properties

Depth class: Very shallow and shallow

Drainage class: Well drained

Permeability: Slow

Available water capacity: Low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: High

Characteristics of the Sideshow soil

Landscape position: Alluvial fans and hills

Slope range: 25 to 40 percent

Parent material: Kind—alluvium; source—Mancos Shale

Typical Profile

0 to 3 inches—brown silty clay loam

3 to 60 inches—brown clay

Soil Properties

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: High

Potential rooting depth: 60 inches or more

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Moderate

Shrink-swell potential: High

Included Areas

Contrasting Inclusions

Ramper soils on alluvial fans

Wauquie soils on hills

Dolcan soils on hills

Similar Inclusions

Soils that have bedrock between 20 and 60 inches

Major Uses

Wildlife habitat and livestock grazing

Major Management Factors

Rangeland

Suitability: Poor

Dominant vegetation in the potential plant community on the Zigzag soil: Pinyon, juniper, Indian ricegrass, western wheatgrass, big sagebrush, muttongrass, mountain mahogany

Dominant vegetation in the potential plant community on the Sideshow soil: Big sagebrush, western wheatgrass, Indian ricegrass, prairie Junegrass

Potential annual production of air-dry vegetation on the Zigzag soil: 400 pounds per acre

Potential annual production of air-dry vegetation on the Sideshow soil: 900 pounds per acre

Soil-related factors: Depth, slope

Management considerations:

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, depth

Building Site Development

Suitability: Poor

Soil-related factors: Slope, permeability, depth, shrink-swell

Management considerations:

- High shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Steepness of slope will increase the hazard of erosion and should be considered in construction.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

151—Zyme gravelly clay loam, 3 to 12 percent slopes

Setting

Landscape position: Knobs, ridges, and hills

Parent material: Kind—residuum; source—Mancos Shale

Native plant community: Sagebrush and grasses

Elevation: 5,800 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 11 to 13 inches

Frost-free period: 120 to 135 days

Composition

Zyme soil and similar inclusions: 85 percent

Contrasting inclusions: 15 percent

Typical Profile

0 to 2 inches—light brownish gray gravelly clay loam

2 to 12 inches—brown clay loam

12 inches—weathered Mancos Shale

Soil Properties

Depth class: Very shallow and shallow

Drainage class: Well drained

Permeability: Slow

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

Rock outcrop

Mikim soils on alluvial fans

Crosscan soils on hills

Similar Inclusions

Zyme soils with more coarse fragments on the surface

Major Uses

Livestock grazing and wildlife habitat

Major Management Factors

Rangeland

Suitability: Very poor

Dominant vegetation in the potential plant community:

Galleta, Indian ricegrass, western wheatgrass, big sagebrush

Potential annual production of air-dry vegetation: 300 pounds per acre

Soil-related factors: Depth

Management considerations:

- Low available water capacity limits forage production.
- Low annual precipitation limits forage production.

Cropland

Suitability: Unsuitable

Soil-related factors: Depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, permeability, shrink-swell

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

152—Zyme very channery clay loam, 12 to 65 percent slopes

Setting

Landscape position: Knobs, ridges, and hills

Parent material: Kind—residuum; source—Mancos Shale

Native plant community: Sagebrushes and grasses

Elevation: 5,800 to 6,200 feet

Mean annual temperature: 50 to 52 degrees F

Mean annual precipitation: 11 to 13 inches

Frost-free period: 120 to 135 days

Composition

Zyme soil and similar inclusions: 80 percent

Contrasting inclusions: 20 percent

Typical Profile

0 to 2 inches—brown very channery clay loam

2 to 12 inches—brown clay loam

12 inches—weathered Mancos Shale

Soil Properties

Depth class: Very shallow and shallow

Drainage class: Well drained

Permeability: Slow

Available water capacity: Very low

Potential rooting depth: 6 to 20 inches

Flooding: None

Runoff: Very high

Hazard of water erosion: Severe

Hazard of wind erosion: Slight

Shrink-swell potential: Moderate

Included Areas

Contrasting Inclusions

Mikim soils on alluvial fans

Crosscan soils on hills

Rock outcrop

Similar Inclusions

Soils that have more rock fragments on the surface

Major Use

Wildlife habitat

Major Management Factors

Rangeland

Suitability: Very poor

Dominant vegetation in the potential plant community:

Galleta, Indian ricegrass, western wheatgrass,
big sagebrush

Potential annual production of air-dry vegetation: 300
pounds per acre

Soil-related factors: Depth, slope

Management considerations:

- Low annual precipitation limits forage production.

- Low available water capacity limits forage production.
- Steep slopes limit livestock use to areas of less slope.

Cropland

Suitability: Unsuitable

Soil-related factors: Slope, depth

Building Site Development

Suitability: Poor

Soil-related factors: Depth, permeability, slope,
shrink-swell potential

Management considerations:

- Moderate shrink-swell potential should be considered in the design of structures.
- Depth to bedrock may limit excavations.
- The presence of shallow bedrock may adversely affect septic systems.
- Slope may limit septic system design.
- The design of septic systems should consider the slow permeability of the soil.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the

tables identify the limitations that affect specified uses and indicate the severity of those limitations.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *slight*, *moderate*, and *severe*. The suitability ratings are expressed as *good*, *fair*, *poor* and *very poor*.

Crops

About 18 percent of the survey area is used for the production of crops, hay, and pasture. Of this total, about 7 percent is irrigated, mainly in Montezuma County. Nonirrigated cropland accounts for about 11 percent of the survey area with the majority in Dolores County (fig. 6). Major irrigated crops are alfalfa and grass/alfalfa hay. Minor amounts of irrigated pinto beans and small grains such as oats and wheat also are grown. The majority of the alfalfa hay is shipped south by truck for use in dairy operations in other states. Most of the grass/alfalfa hay is consumed by local livestock. Historically this area has produced large quantities of nonirrigated pinto beans and winter wheat. With the recent completion of the Dolores Irrigation Project, much of the previously nonirrigated cropland now receives irrigation water. Pinto beans and wheat are still important crops in the areas not receiving irrigation water. A small number of acres are used for specialty crops such as sunflowers, saffron, and garbanzo beans.

Irrigation water for the area originates in the San Juan Mountains to the northeast of the survey area. Water from the Mancos River and smaller creeks is stored in Jackson, Summit, and Puett Reservoirs. This water is used to irrigate areas in the eastern part of the survey area. McPhee Reservoir, constructed in the 1980's, stores water from the



Fig. 6.—Nonirrigated alfalfa in an area of Wetherill loam, 3 to 6 percent slopes.

Dolores River and provides irrigation water for approximately 50,000 acres of cropland. Most areas served by these reservoirs have adequate supplies of water throughout the growing season. Some areas served by direct diversion of water from a stream, or those on a smaller reservoir system, may be limited in available water by the middle to late summer months.

In many areas of the survey area, improved irrigation water management may be needed. Many areas have water that seeps below the root zone or runs off the field in excessive amounts. Most areas that are currently irrigated near Mancos or between Cortez and Dove Creek have moderately fine or fine-textured subsoil horizons with moderately slow or slow permeability; therefore, water should be applied at a uniform, slow rate. Sprinkler systems allow for uniform and regulated applications of water and are the most efficient method for water application on cropland.

Some areas have special problems of high soluble salt content and/or high seasonal water tables. The majority of these areas are located to the south of Cortez and have formed in alluvial material from the

Mancos and Mesa Verde Formations. High salt content reduces a plant's ability to use the available moisture that is present in the soil. Only plants that are adapted to these conditions will thrive. Most areas with high salt content also have an associated high water table present during some part of the year. Seepage water from irrigated areas upslope moves through the soil picking up salts from the natural material. In low-lying areas, the water accumulates and forms a water table. As plants and evaporation remove water from the soil, salts are left behind and accumulate. In order to reclaim these areas, a suitable drainage outlet is needed to lower the water table. Low-salt irrigation water can then be used to flush the salts below the rooting zone.

Good tilth and organic matter content should be maintained in cropland soils. This can be accomplished by returning crop residue to the soil and by using green manure crops. Barnyard manure, when available, can be used to maintain tilth, organic matter content, and fertility.

Soil fertility is important for crop production. In most areas of irrigated crops, applications of fertilizer are needed for maximum production. Nitrogen and

phosphorus are the nutrients most lacking in the survey area. Local levels of potassium normally are adequate for common crops. The trace element zinc has been found to be lacking in some areas. The amount of fertilizer applied should be based on a soil test. The Cooperative Extension Service can provide assistance on obtaining a soil test and determining the kind and amount of fertilizer to apply.

Timely tillage, planting, and harvesting are important in producing a crop, maintaining soil tilth, and preventing soil erosion. Tillage operations should be carried out when soil moisture conditions are optional. Most of the irrigated soils become compacted if tilled when they are too wet or become extremely cloddy if tilled when very dry. Timely planting is necessary to take full advantage of the limited growing season and moisture. Some crops and grasses are best planted in late July or after the plants go dormant in the fall to assure that moisture is available for germination and establishment. Using minimum tillage and maintaining crop residue on the surface help to prevent erosion and conserve moisture.

Weed control is important in all cropland and native areas because of the competition for soil moisture and nutrients. Annual weeds are the most common and easiest to control. Perennial noxious weeds such as Russian knapweed, Canadian thistle, and field bindweed are very hard to eliminate because of their extensive perennial root systems. They can be controlled with herbicides, tillage, and biological controls.

Irrigated pasture in the survey area typically consists of areas that are harvested for one cutting of grass hay and then grazed by livestock the remaining part of the year. Most areas are irrigated by flooding from contour ditches. Proper grazing use may include delayed grazing, avoiding grazing when the soils are wet to avoid compaction, and rotational grazing. Some grasses will benefit from mowing, which helps to distribute grazing and to stimulate plant growth. Weed control may be necessary to maintain the proper species of forage.

Preventing water erosion is an important concern on all soils in the survey area. Most soils used for cropland or pasture have a moderate hazard of water erosion. Conducting most farming operations on the contour helps to prevent runoff and water erosion. Maintaining adequate ground cover will help to reduce erosion, increase infiltration, and maintain soil tilth. Land smoothing or leveling of irrigated fields will ensure uniform slopes and help to prevent runoff.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (USDA, 1961). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk

of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2*e*. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly

because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (USDA, 1999) and “Keys to Soil Taxonomy” (USDA, 1998) and in the “Soil Survey Manual” (USDA, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field.

These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt et al., 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt et al., 1996).

- 88—Pogo loam, 0 to 2 percent slopes
- 27—Dalmatian-Apmay-Schrader complex, 0 to 5 percent slopes (Schrader component)
- 29—Endoaquolls-Ustifluvents complex, 0 to 5 percent slopes (Endoaquolls component)

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 170,000 acres, or 22 percent, of the survey area would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water was available (SCS-USDA, 1982). Approximately 45,000 acres of the survey area currently have adequate irrigation water supplies and qualify as Prime Farmland. These soils are mainly located between Cortez and Dove Creek and are irrigated by water stored in McPhee Reservoir.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, steeper, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been

overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Rangeland

By Cici Sloan and Jerry Archuleta, Range Conservationists,
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In areas that have similar climate and topography, differences in the kind and amount of rangeland or forest vegetation are closely related to the kind of soil. Effective management is based on the

relationship between the soils and vegetation and water.

About 33 percent of the Cortez Soil Survey Area is rangeland. The major use of rangeland is for grazing. Associated uses include wildlife habitat and recreation. Rangeland is a significant watershed component affecting both water quality and quantity.

The survey area contains three distinct native plant communities. They are the salted desert, foothill, and mountain plant communities. The salted desert plant communities are found in the southwest part of the survey area near McElmo creek. They are at the lower elevations (5,000 to 5,700 feet), with saltier soils and lower precipitation. The next step up in



Fig. 7.—Area of Clayey Salted Desert Ecological Site (Uzacol-Zwicker-Claysprings complex, 3 to 12 percent slopes) in the foreground. An area of Salted Desert Breaks Ecological Site (Typic Torriorthents-Rock outcrop complex, 12 to 80 percent slopes) is on the rugged mesa sideslopes.



Fig. 8—Area of Barx loam, 3 to 6 percent slopes, in the Semidesert Loam Ecological Site. The snow-capped La Plata Mountains are visible in the distance.

elevation (5,400 to 7,400 feet) and rainfall represents the foothill plant communities. They are located throughout much of the survey area and are found mainly on reddish eolian soils covering the stable mesa tops. The mountain plant communities occur at the highest elevation (7,100 to 8,800 feet) and precipitation along the rim of the Dolores Canyon and upper elevations of the Mesa Verde Plateau.

The salt-desert plant community supports grasses, shrubs, and forbs that are both drought- and salt-tolerant (fig. 7). Dominant shrubs include shadscale, mat saltbush, Gardner saltbush, and fourwing saltbush. Associated cool season grasses are Indian

ricegrass and bottlebrush squirreltail. Important warm season grasses are alkali sacaton and galleta. Non-native annual species, such as cheatgrass brome and Russian thistle, are abundant on depleted rangeland.

The foothill plant community occupies the mid-elevation areas of the survey area. This plant community fluctuates between woody and grassland communities, depending upon the occurrence of fire or manipulation by humans (fig. 8). Pinyon pine and Utah juniper trees, rabbitbrush, and sagebrush are woody species that increase in the absence of fire. Cool season grasses such as western wheatgrass,

Indian ricegrass, junegrass, muttongrass, and needleandthread are in the potential native plant community.

The higher precipitation of the mountain community allows for the establishment of woodland as well as grassland communities. Woody species such as ponderosa pine, Gambel's oak, and serviceberry occur in this community. The grassland in these areas supports a variety of grasses, including Arizona fescue, mountain muhly, Parry's oatgrass, and needlegrasses. Bluegrass and forbs will increase in areas of high use.

Table 7 shows, for each soil, the ecological site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in table 7 follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available

soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Characteristic vegetation—the grasses, forbs, shrubs and trees that make up most of the potential natural plant community on each soil—is listed by common name. Under *composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the "National Range and Pasture Handbook," which is available in local offices of the Natural Resources Conservation Service.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Recreation

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic

tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best

soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

This survey area has a wide variety of wildlife habitat types, including irrigated and nonirrigated cropland, rangeland, and woodland. These areas range from semidesert to mountains. The survey area includes diverse habitats which provide the elements needed for a wide range of wildlife.

Land use changes affect wildlife habitat and their associated species. The rapid population growth in recent years and the resulting construction of subdivisions, roads, and homesites adversely affects the habitat and migration of many types of wildlife. The recent large-scale development of irrigation on previously nonirrigated areas has affected the food and habitat of the wildlife in those areas. The designation of wildlife habitat areas throughout the survey area has helped provide protected areas for wildlife to live.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or

very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, orchardgrass, brome grass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are scarlet globemallow, yarrow, elk sedge, western wheatgrass, and galleta.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are ponderosa pine, pinyon, and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are mountain mahogany, antelope bitterbrush, snowberry, and big sagebrush.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are inland saltgrass, cattails, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, blue grouse, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include elk, deer, sage grouse, meadowlark, and lark bunting.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and

the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of

proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause

the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 11 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable

for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter

is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good*, *fair*, or *poor* as a source of roadfill

and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table,

only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter

content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, a cemented pan, or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The

design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 14 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998).

The Unified system classifies soils according to properties that affect their use as construction

material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries,

the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 15 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 15, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $1/3$ - or $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore

space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $1/3$ - or $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available

water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 15 as the K factor (K_w and K_f) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor K_w indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor K_f indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 16 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical

conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 17 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell

potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 17 indicates by month, the range to the top of the saturated zone in most years. Estimates are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and frequency are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering

surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 18 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation.

Depth to top is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey

soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Physical and Chemical Analyses of Selected Soils

Laboratory analysis of several pedons in the survey area are available from the National Soil Survey Laboratory, Lincoln, Nebraska, via the internet at <http://www.nrcs.usda.gov>. Following is a list of series sampled from the Cortez Soil Survey Area, parts of Dolores and Montezuma Counties.

Sampled as	Laboratory Sample	Map Unit Number	Published Name
Barx	S93CO-83-003	8	Barx
Barx	S93CO-83-003A	8	Barx
Barx	S93CO-83-003B	8	Barx
Gladel	S93CO-83-004	105	Rizno
Gladel	S93CO-83-004A	105	Rizno
Hesperus	S93CO-83-001	55	Hesperus
Mikim	S83CO-83-001	75	Mikim
Morefield	S93CO-83-006	77	Morefield
Morefield	S93CO-83-006A	77	Morefield
Nortez	S83CO-83-003	78	Nortez
Prater	S93CO-83-002	92	Prater
Pulpit	S93CO-83-005	105	Gapmesa
Pulpit	S93CO-83-005A	105	Gapmesa
Redlands	S80CO-83-002	70	Mack

Physical and Chemical Analyses of Selected Soils, continued

Sampled as	Laboratory Sample	Map Unit Number	Published Name
Sheek	S83CO-83-002	120	Sheek
Uzona	S80CO-83-003	138	Uzacol
Witt	S80CO-83-001	144	Wetherill

Samples S83CO-83-004 and S83CO-83-005 were sampled as McPhee Dam. They were sampled prior to reservoir filling and are now within the floodpool and inundated by water.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Ustalf (*Ust*, meaning dry climate, usually hot summers, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplustalfs (*Hapl*, meaning minimal horizonation, plus *ustalf*, the suborder of the Alfisols that has a ustic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any

other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Aridic* identifies the subgroup that is drier than is typical for this great group. An example is Aridic Haplustalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, superactive, mesic Aridic Haplustalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The Wetherill series has a classification of fine-silty, mixed, superactive, mesic Aridic Haplustalfs.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (USDA, 1993) and "Field Book for Describing and Sampling Soils" (Schoeneberger, 1998). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (USDA, 1999) and in "Keys to Soil Taxonomy" (USDA, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Ackmen Series**Setting**

Depth class: Very deep

Drainage class: Well drained

Landscape position: Flood plains, draws, and drainageways

Parent material: Alluvium derived from mixed sources

Slope: 1 to 6 percent

Elevation: 6,200 to 7,400 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine-silty, mixed, superactive, mesic Cumulic Haplustolls

Typical Pedon

Ackmen loam, 1 to 3 percent slopes, about 200 feet east and 40 feet north of the southwest corner of sec. 18, T. 38 N., R. 16 W.

Ap—0 to 6 inches; dark brown (10YR 3/3) loam, very dark grayish brown (10YR 3/2) moist; weak coarse platy structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; many fine roots between peds; slightly alkaline (pH 7.8); clear smooth boundary.

A1—6 to 17 inches; dark yellowish brown (10YR 4/4) silt loam, very dark grayish brown (10YR 3/2) moist; massive parting to weak coarse granular structure; hard, friable, slightly sticky and slightly plastic; many fine roots between peds; slightly alkaline (pH 7.6); gradual smooth boundary.

A2—17 to 25 inches; dark yellowish brown (10YR 4/4) loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic structure parting to weak medium subangular blocky; hard, friable, slightly sticky and slightly plastic; many very fine roots between peds; slightly alkaline (pH 7.4); gradual smooth boundary.

A3—25 to 60 inches; dark grayish brown (10YR 4/2) clay loam, black (10YR 2/1) moist; weak coarse prismatic structure parting to weak medium subangular blocky; very hard, friable, moderately sticky and moderately plastic; common very fine roots between peds; neutral (pH 7.0).

Range in Characteristics

Thickness of the mollic epipedon: 20 to 36 inches

Depth to bedrock: more than 60 inches

Rock fragment content: 0 to 10 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—1 to 4

Clay content—18 to 35 percent

Reaction—neutral to slightly alkaline

Apmay Series**Setting**

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landscape position: Flood plains

Parent material: Alluvium derived from mixed sources

Slope: 0 to 5 percent

Elevation: 7,000 to 7,200 feet

Mean annual precipitation: 16 to 20 inches

Mean annual temperature: 41 to 47 degrees F

Taxonomic Class

Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Aquic Cumulic Haplustolls

Typical Pedon

Apmay loam in an area of Dalmatian-Apmay-Schrader complex, 0 to 5 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; about 100 feet east and 250 feet south of the northwest corner of sec. 1, T. 38 N., R. 14 W.

A—0 to 4 inches; dark grayish brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure parting to weak very fine granular; soft, very friable, slightly sticky and moderately plastic; many very fine and fine, and common medium roots throughout; many very fine continuous pores; moderately acid (pH 6.0); clear wavy boundary.

AB—4 to 10 inches; dark grayish brown (10YR 4/3) clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine and fine roots throughout; many very fine continuous pores; neutral (pH 6.0); clear wavy boundary.

Bw1—10 to 18 inches; dark grayish brown (10YR 4/3) clay loam, very dark grayish brown (10YR 3/2) moist; common medium prominent reddish yellow (5YR 6/6) iron masses; moderate medium subangular blocky structure; hard, friable,

moderately sticky and moderately plastic; many very fine roots; many very fine continuous pores; neutral (pH 6.6); clear wavy boundary.

Bw2—18 to 22 inches; dark yellowish brown (10YR 4/4) sandy loam, very dark grayish brown (10YR 3/2) moist; common medium prominent reddish yellow (5YR 6/6) iron masses; weak fine subangular blocky structure parting to weak fine granular; hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine continuous pores; 5 percent gravel; neutral (pH 6.6); abrupt smooth boundary.

2C1—22 to 28 inches; brown (7.5YR 5/3) extremely gravelly loamy sand, dark brown (7.5YR 3/2) moist; massive; soft, friable, nonsticky and nonplastic; few fine roots; 60 percent gravel; neutral (pH 6.6); gradual wavy boundary.

2C2—28 to 48 inches; brown (10YR 5/3) extremely gravelly sandy loam, dark brown (10YR 3/3) moist; massive; soft, friable, nonsticky and nonplastic; 60 percent gravel and 5 percent stones; neutral (pH 7.0); gradual wavy boundary.

2C3—48 to 60 inches; brown (10YR 5/3) extremely gravelly sandy loam, dark brown (10YR 3/3) moist; massive; soft, friable, nonsticky and slightly plastic; 60 percent gravel and 5 percent stones; neutral (pH 7.0).

Range in Characteristics

Thickness of the mollic epipedon: 16 to 30 inches

Depth to bedrock: more than 60 inches

Depth to contrasting material: 20 to 40 inches

Depth to water table: 12 to 36 inches

A horizon:

Hue—10YR or 2.5Y

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3

Clay content—15 to 27 percent

Reaction—moderately acid to neutral

Bw horizon:

Hue—10YR or 2.5Y

Value—4 to 5 dry, 3 to 4 moist

Chroma—2 to 4

Texture, fine earth fraction—clay loam or sandy loam

Clay content—10 to 35 percent

Rock fragment content—0 to 10 percent

Predominant rock fragment size—gravel and cobbles

Reaction—neutral

2C horizon:

Hue—7.5YR to 2.5Y

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 4

Texture—sandy loam or loamy sand

Clay content—2 to 10 percent

Rock fragment content—50 to 75 percent

Reaction—neutral

The soils in this area have been correlated as Apmay to facilitate joining with Animas-Dolores Area, Colorado, and the typical pedon is shared with this area. The soils mapped as Apmay are taxadjuncts to the series. The Apmay series has a fine-loamy over sandy or sandy-skeletal particle-size control section. The Apmay soils in this area have loamy-skeletal textures in the lower part of the particle-size control section. The soils mapped as Apmay in this area also differ from the Apmay series due to the distribution of precipitation throughout the year. The Apmay series has precipitation distributed evenly throughout the year. The soils in this area are somewhat drier in May and June and somewhat wetter in July and August. These differences, however, do not significantly affect the use or management of the soils. In this survey area the Apmay soils are coarse-loamy, mixed, superactive, frigid Aquic Cumulic Haplustolls.

Arabrab Series

Setting

Depth class: Shallow and very shallow

Drainage class: Well drained

Landscape position: Mesas

Parent material: Eolian material and residuum derived from sandstone

Slope: 3 to 15 percent

Elevation: 6,800 to 7,800 feet

Mean annual precipitation: 16 to 19 inches

Mean annual temperature: 47 to 50 degrees F .

Taxonomic Class

Loamy, mixed, superactive, mesic Lithic Haplustalfs

Typical Pedon

Arabrab loamy sand, 3 to 9 percent slopes, Mesa Verde National Park, unsectionalized area: lat. 37 degrees 11 minutes 34 seconds N. and long. 108 degrees 31 minutes 10 seconds E.

A—0 to 4 inches; brown (7.5YR 5/3) loamy sand, dark brown (7.5YR 3/2) moist; weak fine granular; soft, very friable, nonsticky and nonplastic; common very fine roots throughout; noneffervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt1—4 to 9 inches; strong brown (7.5YR 5/6) loam,

brown (7.5YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; common coarse roots throughout; common very fine discontinuous tubular pores; few faint patchy clay films on faces of peds and in pores; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—9 to 13 inches; brown (7.5YR 5/4) clay loam, brown (7.5YR 4/4) moist; weak fine subangular blocky structure; hard, firm, slightly sticky and moderately plastic; common coarse roots throughout; common very fine discontinuous tubular pores; common faint discontinuous clay films on faces of peds and in pores; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Btk—13 to 16 inches; brown (7.5YR 4/4) clay loam, brown (7.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium roots throughout; common very fine discontinuous tubular pores; few faint patchy clay films on faces of peds and in pores; violently effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

2R—16 inches; hard Cliffhouse Sandstone.

Range in Characteristics

Depth to bedrock: 6 to 20 inches

Depth to carbonates: 8 to 20 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4

Clay content—5 to 15 percent

Reaction—neutral or slightly alkaline

B horizon:

Hue—7.5YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 to 6

Texture, fine earth fraction—sandy clay loam, clay loam, or loam

Clay content—18 to 35 percent

Reaction—neutral to moderately alkaline

Archuleta Series

Setting

Depth class: Shallow

Drainage class: Well drained

Landscape position: Hills, ridges, and canyons

Parent material: Slope alluvium and residuum derived from sandstone and shale

Slope: 6 to 80 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Loamy, mixed, superactive, frigid, shallow Typic Haplustepts

Typical Pedon

Archuleta very stony sandy loam in an area of Sheek-Archuleta-Rock outcrop complex, 25 to 80 percent slopes, about 2,300 feet north and 1,450 feet west of the southeast corner of sec. 2, T. 35 R., R. 13 W.

Oi—0 to 1 inch; slightly decomposed leaves and twigs; abrupt smooth boundary.

A—1 to 6 inches; grayish brown (10YR 5/2) very stony sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; 10 percent gravel, 15 percent cobbles, and 5 percent stones; slightly acid (pH 6.5); clear wavy boundary.

Bw1—6 to 9 inches; light brownish gray (10YR 6/2) stony sandy loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure parting to moderate medium granular; soft, very friable, nonsticky and nonplastic; 10 percent gravel, 5 percent cobbles, and 10 percent stones; neutral (pH 6.6); gradual wavy boundary.

Bw2—9 to 18 inches; light brownish gray (10YR 6/2) stony clay loam, grayish brown (10YR 5/2) moist; moderate medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; 10 percent gravel, 5 percent cobbles, and 10 percent stones; neutral (pH 6.8); gradual irregular boundary

Cr—18 inches; interbedded sandstone and shale.

Range in Characteristics

Depth to bedrock: 10 to 20 inches

Rock fragment content: 0 to 35 percent

Predominant rock fragment size: gravel, cobbles, and stones

A horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 6 moist

Chroma—1 to 4

Clay content—10 to 25 percent
 Texture, fine earth fraction—loam or very stony sandy loam
 Reaction—slightly acid to slightly alkaline

Bw horizon:

Hue—10YR or 2.5Y
 Value—5 or 6 dry, 4 or 5 moist
 Chroma—2 to 4
 Texture, fine earth fraction—clay loam, sandy loam or sandy clay loam
 Clay content—18 to 35 percent
 Reaction—slightly acid to slightly alkaline

Argiustolls

Setting

Depth class: Moderately deep to very deep
Drainage class: Well drained
Landscape position: Canyons
Parent material: Colluvium and slope alluvium derived from sandstone and shale
Slope: 30 to 80 percent
Elevation: 6,900 to 8,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual temperature: 40 to 47 degrees F

Taxonomic Class

Argiustolls

Reference Pedon

Argiustolls in an area of Argiustolls-Haplustalfs-Rock outcrop complex, 30 to 80 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; located in the northwest quarter of the southeast quarter of sec. 6, T. 38 N., R. 15 W.

Oi—0 to 1 inch; slightly decomposed needles and leaves.

A—1 to 4 inches; very dark grayish brown (10YR 3/2) extremely stony loam, black (10YR 2/1) moist; strong fine subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; many very fine, fine, and medium roots; 15 percent gravel, 25 percent cobbles, and 30 percent stones; neutral (pH 7.0); clear smooth boundary.

Bt1—4 to 7 inches; grayish brown (10YR 5/2) extremely stony clay loam, very dark brown (10YR 2/2) moist; strong medium subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; many very fine, fine, and medium roots; many prominent clay

films on faces of peds; 10 percent gravel, 20 percent cobbles, and 40 percent stones; neutral (pH 7.0); clear wavy boundary.

Bt2—7 to 13 inches; brown (10YR 4/3) extremely stony clay loam, dark brown (10YR 3/3) moist; strong coarse subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; many prominent clay films on faces of peds; 10 percent gravel, 25 percent cobbles, and 30 percent stones; neutral (pH 7.0); clear wavy boundary.

Bt3—13 to 20 inches; yellowish brown (10YR 5/4) very stony clay loam, dark brown (10YR 3/3) moist; strong coarse subangular blocky structure; extremely hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; many prominent clay films on faces of peds; 10 percent gravel, 15 percent cobbles, and 15 percent stones; neutral (pH 7.0); gradual wavy boundary.

Bt4—20 to 37 inches; yellowish brown (10YR 5/4) cobbly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; extremely hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; common prominent clay films on faces of peds; 10 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear smooth boundary.

C1—37 to 50 inches; light gray (10YR 7/2) cobbly clay, brown (10YR 5/3) moist; massive; extremely hard, very firm, moderately sticky and moderately plastic; 10 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear smooth boundary.

C2—50 to 60 inches; light brownish gray (10YR 6/2) clay, grayish brown (10YR 5/2) moist; massive; extremely hard, very firm, moderately sticky and moderately plastic; neutral (pH 7.0).

Range in Characteristics

Thickness of the mollic epipedon: 10 to more than 40 inches

Depth to bedrock: 20 to more than 60 inches

Rock fragment content: 35 to 80 percent

Predominant rock fragment size: gravel, cobbles, and stones

A horizon:

Hue—5YR to 10YR

Clay content—10 to 27 percent

Reaction—slightly acid to slightly line

B horizon:

Hue—5YR to 2.5Y

Texture, fine earth fraction—clay loam, loam, or clay

Clay content—18 to 60 percent

Reaction—slightly acid to slightly line

Reference pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Barx Series**Setting***Depth class:* Very deep*Drainage class:* Well drained*Landscape position:* Mesas and hills*Parent material:* Eolian material derived from sandstone*Slope:* 1 to 12 percent*Elevation:* 5,400 to 6,200 feet*Mean annual precipitation:* 10 to 13 inches*Mean annual temperature:* 50 to 52 degrees F**Taxonomic Class**

Fine-loamy, mixed, superactive, mesic Ustic Calciargids

Typical Pedon

Barx loam, 3 to 6 percent slopes, about 1,400 feet west, 1,500 feet south of the northeast corner of sec. 18, T. 37 N., R. 19 W.

A—0 to 3 inches; brown (7.5YR 5/4) loam, brown (7.5YR 4/4) moist; weak very coarse platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots throughout; neutral (pH 7.2); abrupt smooth boundary.

Bt1—3 to 6 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/4) moist; weak fine angular blocky structure; hard, very friable, slightly sticky and moderately plastic; common very fine roots throughout; few very fine discontinuous tubular pores; clay bridging between sand grains; neutral (pH 7.2); clear smooth boundary.

Bt2—6 to 20 inches; yellowish red (5YR 5/6) sandy clay loam, yellowish red (5YR 4/6), moist; weak fine angular blocky structure; slightly hard, very friable, slightly sticky and moderately plastic; few very fine and fine roots throughout; few very fine discontinuous tubular pores; many faint continuous clay films on faces of peds and in

pores; slightly alkaline (pH 7.6); gradual smooth boundary.

Btk—20 to 31 inches; yellowish red (5YR 5/6) sandy clay loam, yellowish red (5YR 4/6), moist; weak medium angular blocky structure parting to weak fine angular blocky; slightly hard, very friable, slightly sticky and moderately plastic; few very fine roots throughout; few very fine discontinuous tubular pores; clay bridging between sand grains; common fine carbonate threads throughout; strongly effervescent; moderately alkaline (pH 8.2); gradual smooth boundary.

Bk—31 to 60 inches; pinkish white (7.5YR 8/2) sandy clay loam, light brown (7.5YR 6/4), moist; weak medium angular blocky and weak fine angular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; 23 percent calcium carbonate equivalent; many coarse irregular soft masses of carbonate throughout; strongly effervescent; moderately alkaline (pH 8.4).

Range in Characteristics*Depth to bedrock:* more than 60 inches*Depth to carbonates:* 8 to 20 inches*Depth to calcic horizon:* 12 to 32 inches*A horizon:*

Hue—7.5YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 to 5

Texture, fine earth fraction—very fine sandy loam or loam

Clay content—10 to 20 percent

Rock fragment content—0 to 5 percent

Predominant rock fragment size—gravel

Reaction—neutral to moderately alkaline

Bt and Btk horizon:

Hue—5YR or 7.5YR

Value—5 to 7 dry, 4 or 6 moist

Chroma—4 to 6

Texture, fine earth fraction—loam, sandy clay loam, or clay loam

Clay content—18 to 35 percent

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—neutral to moderately alkaline

Bk horizon:

Hue—5YR or 7.5YR

Value—6 to 8 dry, 4 to 8 moist

Chroma—2 to 6

Texture, fine earth fraction—loam, clay loam, or sandy clay loam

Clay content—18 to 30 percent
 Rock fragment content—0 to 15 percent
 Predominant rock fragment size—gravel
 Reaction—moderately or strongly alkaline

Battlerock Series

Setting

Depth class: Very deep
Drainage class: Well drained
Landscape position: Terraces, drainageways, and flood plains
Parent material: Alluvium derived from sandstone and shale
Slope: 0 to 6 percent
Elevation: 5,000 to 5,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual temperature: 52 to 56 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, calcareous, mesic
 Typic Torrifluvents

Typical Pedon

Battlerock clay loam, 0 to 6 percent slopes, about 10 feet east and 850 feet north of the southwest corner of sec. 36, T. 36 N., R. 20 W.

- Ap—0 to 10 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; massive; very hard, firm, moderately sticky and moderately plastic; violently effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
- C1—10 to 16 inches; yellowish brown (10YR 5/4) clay loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
- C2—16 to 24 inches; yellowish brown (10YR 5/4) clay loam, dark brown (10YR 3/3) moist; moderate thin platy structure; hard, firm, very sticky and very plastic; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- Cz—24 to 43 inches; yellowish brown (10YR 5/4) clay loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to weak medium subangular blocky; very hard, firm, moderately sticky and moderately plastic; common fine filaments of salt; strongly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.
- C—43 to 56 inches; yellowish brown (10YR 5/4)

loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Akb—56 to 60 inches; brown (10YR 4/3) clay loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; very hard, friable, moderately sticky and moderately plastic; common fine filaments of calcium carbonate; violently effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Depth to bedrock: more than 60 inches
Depth to carbonates: 0 to 10 inches
Rock fragment content: 0 to 15 percent
Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR to 2.5Y
 Value—5 to 7 dry, 3 to 5 moist
 Chroma—2 to 4
 Clay content—27 to 35 percent
 Reaction—slightly or moderately alkaline

C horizon:

Hue—7.5YR to 2.5Y
 Value—5 to 7 dry, 3 to 5 moist
 Chroma—2 to 4
 Texture, fine earth fraction—loam or clay loam
 Clay content—18 to 35 percent
 Reaction—slightly or moderately alkaline

Beje Series

Setting

Depth class: Shallow
Drainage class: Well drained
Landscape position: Mesas, hills, and ridges
Parent material: Eolian material, slope alluvium, and residuum derived from sandstone
Slope: 1 to 30 percent
Elevation: 7,100 to 8,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Loamy, mixed, superactive, frigid Lithic Argiustolls

Typical Pedon

Beje loam in an area of Ormiston-Beje complex, 5 to 30 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; about 550 feet

west and 450 feet south of the northeast corner of sec. 20, T. 38 N., R. 15 W.

A—0 to 2 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and slightly plastic; 5 percent gravel, 2 percent cobbles and 2 percent stones; neutral (pH 7.0); clear wavy boundary.

AB—2 to 7 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; 5 percent gravel; neutral (pH 7.0); clear wavy boundary.

Bt—7 to 14 inches; brown (7.5YR 4/4) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few faint clay films on faces of pedis; 5 percent gravel; neutral (pH 7.0); clear wavy boundary

R—14 inches; hard sandstone.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 16 inches

Depth to bedrock: 10 to 20 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3

Clay content—10 to 20 percent

Reaction—neutral

Bt horizon:

Hue—7.5YR or 10YR

Value—3 to 5 dry, 3 or 4 moist

Chroma—3 or 4

Texture, fine earth fraction—clay loam, loam, or sandy clay loam

Clay content—18 to 35 percent

Reaction—neutral

Typical pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Bodry Series

Setting

Depth class: Moderately deep

Drainage class: Well drained

Landscape position: Hills

Parent material: Colluvium over residuum derived from shale

Slope: 20 to 50 percent

Elevation: 5,600 to 5,800 feet

Mean annual precipitation: 10 to 12 inches

Mean annual temperature: 49 to 53 degrees F

Taxonomic Class

Fine, smectitic, calcareous, mesic Ustertic Torriorthents

Typical Pedon

Bodry very cobbly loam in an area of Rizno-Littlenan-Bodry association, 3 to 50 percent slopes, from the adjoining San Juan County, Utah, Central Part Soil Survey; near the end of White Mesa, about 1,500 feet east and 100 feet north of the southwest corner of sec. 17, T. 38 S., R. 22 E.

A—0 to 6 inches; light brown (7.5YR 6/4) very cobbly loam, brown (7.5YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and medium discontinuous tubular pores; 25 percent gravel, 15 percent cobbles, 3 percent stones, and 1 percent boulders; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

C1—6 to 15 inches; light brownish gray (2.5Y 6/2) clay loam, grayish brown (2.5YR 5/2) moist; massive; hard, firm, slightly sticky and moderately plastic; common very fine, fine, medium, and coarse roots throughout; common fine and few medium discontinuous tubular pores; slightly effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.

C2—15 to 22 inches; light gray (5Y 7/1) clay loam, light brownish gray (2.5Y 6/2) moist; massive; very hard, very firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine discontinuous tubular pores; common fine gypsum crystals; slightly effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.

C3—22 to 36 inches; light gray (5Y 7/1) clay loam, olive gray (5Y 5/2) moist; massive; very hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; many fine and medium masses of gypsum; slightly effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.

Cr—36 inches; weathered gypsiferous shale.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

A horizon:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4

Clay content—10 to 25 percent

Rock fragment content—35 to 45 percent

Predominant rock fragment size—gravel and cobbles

Reaction—slightly or moderately alkaline

C horizon:

Hue—7.5YR to 5Y

Value—5 to 7 dry, 3 to 6 moist

Chroma—1 to 4

Texture, fine earth fraction—sandy clay loam, clay loam, silty clay loam, silty clay, or clay

Clay content—35 to 60 percent

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—slightly or moderately alkaline

Typical pedon is shared with the San Juan County, Utah, Central Part, Soil Survey to facilitate joining.

Burnson Series

Setting

Depth class: Deep

Drainage class: Well drained

Landscape position: Hills, mesas, and structural benches

Parent material: Eolian material, residuum, and slope alluvium derived from sandstone and shale

Slope: 1 to 30 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 17 to 20 inches

Mean annual temperature: 41 to 47 degrees F

Taxonomic Class

Fine, smectitic, frigid Typic Haplustalfs

Typical Pedon

Burnson loam, 1 to 15 percent slopes; from the adjoining Animas-Dolores Area, Colorado, Soil Survey; about 12 miles east of Dove Creek, Colorado; located about 1,200 feet south and 1,700 feet east of the northwest corner of sec. 19, T. 40 N., R. 16 W.

Oi—0 to 1 inch; slightly decomposed leaves and pine needles

A—1 to 4 inches; brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; neutral (pH 6.8); clear smooth boundary.

AB—4 to 8 inches; brown (7.5YR 4/3) clay loam, dark brown (7.5YR 3/2) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; 5 percent gravel; slightly acid (pH 6.4); gradual wavy boundary.

Bt1—8 to 18 inches; reddish brown (5YR 5/4) sandy clay, reddish brown (5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, very firm, very sticky and moderately plastic; common distinct clay films on faces of peds; organic staining along some ped faces and in some root channels; 10 percent soft sandstone gravel; slightly acid (pH 6.2); gradual irregular boundary.

Bt2—18 to 29 inches; mixed colors of reddish brown (5YR 5/4) and reddish gray (5YR 5/2) sandy clay, reddish brown (5YR 4/3) and dark reddish gray (5YR 4/2) moist, reddish brown (5YR 5/4) moist; moderate coarse prismatic structure parting to moderate fine prismatic; very hard, very firm, moderately sticky and moderately plastic; common prominent clay films on faces of peds and in pores; organic staining along some ped faces and in some root channels; 13 percent soft sandstone gravel; slightly acid (pH 6.1); gradual irregular boundary.

BC—29 to 44 inches; mixed materials of reddish brown (5YR 4/4) clay and brownish yellow (10YR 6/6) sandy clay loam, dark reddish brown (5YR 3/4) and brownish yellow (10YR 6/6) moist; massive; very hard, very firm, clay is very sticky and moderately plastic, sandy clay loam is moderately sticky and slightly plastic; many pressure faces in the clay part; 5 percent gravel; effervescent in few fine soft masses of lime directly above bedrock; neutral (pH 6.8); abrupt smooth boundary.

R—44 inches; hard Dakota Sandstone, weathered in upper inch.

Range in Characteristics

Depth to bedrock: 40 to 60 inches

A horizon:

Hue—7.5YR or 10YR

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 to 3

Texture, fine earth fraction—loam or clay loam
 Clay content—15 to 35 percent
 Rock fragment content—0 to 5 percent
 Predominant rock fragment size—gravel
 Reaction—slightly acid or neutral

Bt horizon:

Hue—5YR or 7.5YR
 Value—3 to 6 dry, 3 or 4 moist
 Chroma—3 to 6
 Texture, fine earth fraction—clay loam, clay, or sandy clay
 Clay content—35 to 55 percent
 Rock fragment content—0 to 15 percent
 Predominant rock fragment size—gravel
 Reaction—slightly acid or neutral

Typical pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Cahona Series

Setting

Depth class: Very deep
Drainage class: Well drained
Landscape position: Hills and mesas
Parent material: Eolian material derived from sandstone
Slope: 1 to 12 percent
Elevation: 6,200 to 7,400 feet
Mean annual precipitation: 13 to 16 inches
Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine-silty, mixed, superactive, mesic Calcic Haplustalfs

Typical Pedon

Cahona loam, 3 to 6 percent slopes, about 500 feet south and 1,500 feet east of the northwest corner of Sec. 9, T. 41 N., R. 19 W.

- A1—0 to 1 inch; reddish brown (5YR 4/4) loam, dark reddish brown (5YR 3/4) moist; single grain; loose nonsticky and nonplastic; slightly effervescent; slightly alkaline (pH 7.5); clear smooth boundary.
- A2—1 to 5 inches; reddish brown (5YR 4/4) loam, dark reddish brown (5YR 3/4) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very

fine roots throughout; common very fine discontinuous tubular pores; slightly alkaline (pH 7.4); clear smooth boundary.

Bt—5 to 15 inches; yellowish red (5YR 4/6) clay loam, reddish brown (5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, friable, slightly sticky and moderately plastic; common fine roots throughout; common fine discontinuous tubular pores; slightly effervescent; slightly alkaline (pH 7.8); gradual smooth boundary.

Btk—15 to 25 inches; yellowish red (5YR 5/6) clay loam, reddish brown (5YR 4/4) moist; weak medium prismatic structure parting to moderate medium angular blocky; hard, friable, moderately sticky and moderately plastic; common fine and medium roots throughout; common fine discontinuous tubular pores; common fine irregular soft masses of carbonate; violently effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bk1—25 to 38 inches; pinkish white (5YR 8/2) loam, light reddish brown (5YR 6/3) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, firm, slightly sticky and moderately plastic; common medium roots throughout; 43 percent calcium carbonate equivalent; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bk2—38 to 60 inches; pinkish gray (5YR 7/2) loam, light reddish brown (5YR 6/3) moist; massive; hard, firm, slightly sticky and slightly plastic; common medium roots throughout; violently effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to bedrock: more than 60 inches
Depth to carbonates: 5 to 30 inches
Depth to calcic horizon: 20 to 40 inches
Rock fragment content: 0 to 5 percent
Predominant rock fragment size: gravel

A horizon:

Hue—5YR or 7.5YR
 Value—4 to 7 dry, 3 to 6 moist
 Chroma—2 to 6
 Clay content—10 to 20 percent
 Reaction—neutral or slightly alkaline

Bt or Btk horizon:

Hue—5YR
 Value—4 to 7 dry, 3 to 5 moist

Chroma—3 to 6
 Texture, fine earth fraction—loam or clay loam
 Clay content—18 to 35 percent
 Reaction—slightly to moderately alkaline

Bk horizon:

Hue—7.5YR or 5YR
 Clay content—18 to 27 percent
 Reaction—slightly to strongly alkaline

Claysprings Series

Setting

Depth class: Shallow and very shallow
Drainage class: Well drained
Landscape position: Ridges, knobs, hills, and canyons
Parent material: Residuum derived from Morrison Shale
Slope: 3 to 65 percent
Elevation: 5,000 to 5,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual temperature: 52 to 56 degrees F

Taxonomic Class

Clayey, smectitic, calcareous, mesic, shallow Typic Torriorthents

Typical Pedon

Claysprings very stony clay loam in an area of Uzacol-Zwicker-Claysprings complex, 3 to 12 percent slopes, about 2,300 feet east and 2,600 feet north of the southwest corner of sec. 27, T. 36 N., R. 19 W.

A—0 to 3 inches; pink (5YR 7/3) very stony clay loam, dark brown (7.5YR 4/4) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; 10 percent gravel, 10 percent cobbles, and 15 percent stones; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

AC—3 to 9 inches; light reddish brown (5YR 6/3) clay, reddish brown (5YR 4/4) moist; moderate fine angular and subangular blocky structure; hard, firm, moderately sticky and moderately plastic; slightly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

Cy—9 to 18 inches; reddish gray (5YR 5/2) clay, reddish brown (5YR 4/4) moist; massive; hard, friable, moderately sticky and moderately plastic; common fine gypsum crystals; strongly effervescent; very strongly alkaline (pH 9.2); abrupt smooth boundary

Cr—18 inches; slightly weathered Morrison Shale.

Range in Characteristics

Depth to bedrock: 6 to 20 inches

A horizon:

Hue—5YR or 7.5YR
 Value—4 to 7 dry, 4 or 5 moist
 Chroma—2 to 4
 Clay content—27 to 35 percent
 Rock fragment content—5 to 60 percent
 Predominant rock fragment size—gravel, cobbles, and stones
 Reaction—moderately to very strongly alkaline

C horizon:

Hue—5YR or 7.5YR
 Value—4 to 6 dry, 4 to 6 moist
 Chroma—2 to 4
 Clay content—35 to 60 percent
 Reaction—moderately to very strongly alkaline

Collide Series

Setting

Depth class: Very deep
Drainage class: Well drained
Landscape position: Terraces and fans
Parent material: Eolian material derived from sandstone
Slope: 0 to 12 percent
Elevation: 7,000 to 7,600 feet
Mean annual precipitation: 15 to 17 inches
Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine, smectitic, mesic Aridic Argiustolls

Typical Pedon

Collide clay loam in an area of Collide complex, 2 to 6 percent slopes, about 2,560 feet east and 1,200 feet south of the northwest corner of sec. 31, T. 36 N., R. 13 W.

Ap1—0 to 3 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; hard, friable, slightly sticky and slightly plastic; slightly alkaline (pH 7.5); clear smooth boundary.

Ap2—3 to 10 inches; dark grayish brown (10YR 4/2) clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; slightly alkaline (pH 7.5); clear smooth boundary.

- Bt—10 to 29 inches; yellowish red (5YR 5/6) clay loam, reddish brown (5YR 4/4) moist; moderate coarse prismatic structure parting to moderate coarse subangular blocky; very hard, firm, moderately sticky and moderately plastic; slightly alkaline (pH 7.4); gradual wavy boundary.
- Btk1—29 to 40 inches; yellowish red (5YR 4/6) clay loam, reddish brown (5YR 4/4) moist; moderate coarse prismatic structure parting to moderate coarse subangular blocky; very hard, firm, moderately sticky and moderately plastic; few fine seams of calcium carbonate; slightly effervescent; slightly alkaline (pH 7.6); clear wavy boundary.
- Btk2—40 to 50 inches; yellowish red (5YR 5/6) clay loam, yellowish red (5YR 4/6) moist; moderate coarse prismatic structure parting to moderate coarse subangular blocky; very hard, firm, moderately sticky and moderately plastic; common large soft masses of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
- Btk3—50 to 60 inches; light reddish brown (5YR 6/4) clay loam, strong brown (7.5YR 5/6) moist; weak coarse subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; many large soft masses of calcium carbonate; violently effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Thickness of the mollic epipedon: 7 to 16 inches

Depth to bedrock: more than 60 inches

Depth to carbonates: 10 to 30 inches

A horizon:

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Texture, fine earth fraction—clay loam or loam

Clay content—15 to 35 percent

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR

Value—3 to 6 dry, 2 to 5 moist

Chroma—2 to 6

Texture, fine earth fraction—clay loam or clay

Clay content—35 to 50 percent

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—slightly or moderately alkaline

Btk horizon:

Hue—5YR or 7.5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—4 to 6

Texture, fine earth fraction—clay loam or clay

Clay content—35 to 50 percent

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—slightly or moderately alkaline

2Bk horizon, if present:

Hue—5YR or 7.5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—4 to 6

Clay content—20 to 50 percent

Rock fragment content—15 to 70 percent

Predominant rock fragment size—gravel, cobbles, and stones

Reaction—slightly or moderately alkaline

Crosscan Series

Setting

Depth class: Shallow and very shallow

Drainage class: Well drained

Landscape position: Canyons and hills

Parent material: Colluvium and residuum derived from sandstone and shale

Slope: 6 to 80 percent

Elevation: 5,400 to 6,800 feet

Mean annual precipitation: 10 to 14 inches

Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Loamy-skeletal, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents

Typical Pedon

Crosscan very bouldery sandy clay loam in an area of Romberg-Crosscan-Rock outcrop complex, 25 to 80 percent slopes, about 1,190 feet east and 1,950 feet north of the southwest corner of sec. 30, T. 37 N., R. 17 W.

A—0 to 2 inches; dark brown (7.5YR 4/4) very bouldery sandy clay loam, dark brown (7.5YR 3/2) moist; moderate medium granular structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; 25 percent gravel, 10 percent cobbles, 10 percent stones, and 5 percent boulders; slightly effervescent; slightly alkaline (pH 7.5); clear wavy boundary.

AC—2 to 9 inches; light brown (7.5YR 6/4) very gravelly clay loam, dark brown (7.5YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; 25 percent gravel, 10 percent cobbles, and 10 percent stones; strongly effervescent; slightly alkaline (pH 7.8); clear wavy boundary.

C—9 to 18 inches; variegated colors (5YR to 2.5Y) of very gravelly clay loam, weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; 25 percent gravel, 10 percent cobbles, and 10 percent stones; disseminated calcium carbonate; strongly effervescent; moderately alkaline (pH 7.9); abrupt wavy boundary.

Cr—18 inches; calcareous shale.

Range in Characteristics

Depth to bedrock: 6 to 20 inches

Rock fragment content: 35 to 60 percent

Predominant rock fragment size: gravel, cobbles, and stones

A horizon:

Hue—7.5YR to 2.5Y

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 to 4

Clay content—20 to 35 percent

Reaction—slightly or moderately alkaline

C horizon:

Hue—7.5YR to 2.5Y

Texture, fine earth fraction—loam, sandy clay loam, or clay loam

Clay content—18 to 35 percent

Reaction—slightly or moderately alkaline

Dalmatian Series

Setting

Depth class: Very deep

Drainage class: Moderately well drained

Landscape position: Flood plains

Parent material: Alluvium derived from mixed sources

Slope: 0 to 5 percent

Elevation: 7,000 to 7,200 feet

Mean annual precipitation: 16 to 20 inches

Mean annual temperature: 41 to 47 degrees F

Taxonomic class

Fine-loamy, mixed, superactive, frigid Cumulic Haplustolls

Typical Pedon

Dalmatian loam in an area of Dalmatian-Apmay-Schrader complex, 0 to 5 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; about 1,600 feet east and 2,200 feet south of the northwest corner of sec. 25, T. 37 N., R. 14 W.

A—0 to 2 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure parting to weak fine granular; slightly hard, friable, nonsticky and slightly plastic; many very fine and common fine roots; many very fine continuous pores; neutral (pH 6.8); clear smooth boundary.

AB—2 to 13 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, nonsticky and slightly plastic; many very fine and few fine roots; many very fine and few medium continuous pores; neutral (pH 6.8); clear wavy boundary.

Bw1—13 to 25 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; many very fine and few fine roots; many very fine continuous pores; neutral (pH 6.8); clear smooth boundary.

Bw2—25 to 39 inches; dark brown (10YR 3/3) loam, very dark brown (10YR 2/2) moist; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; few fine roots; many very fine continuous pores; neutral (pH 6.8); clear wavy boundary.

Bw3—39 to 45 inches; dark grayish brown (10YR 4/2) sandy clay loam, very dark brown (10YR 2/2) moist; common medium distinct strong brown (7.5YR 4/6) masses of iron concentrations; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; few fine roots; many very fine continuous pores; neutral (pH 6.8); clear smooth boundary.

Bg1—45 to 49 inches; dark gray (10YR 4/1) sandy clay loam, very dark brown (10YR 2/2) moist; common medium distinct yellowish brown (10YR

5/4) masses of iron concentrations; moderate coarse subangular blocky structure parting to moderate fine subangular blocky; hard, friable, nonsticky and slightly plastic; few fine roots; many very fine continuous pores; neutral (pH 6.8); gradual wavy boundary.

Bg2—49 to 60 inches; dark gray (10YR 4/1) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; common medium distinct yellowish brown (10YR 5/4) masses of iron concentrations; massive; very hard, friable, nonsticky and nonplastic; 20 percent gravel and 10 percent cobbles; neutral (pH 6.8)

Range in Characteristics

Thickness of the mollic epipedon: 20 to 60 inches

Depth to bedrock: more than 60 inches

Depth to water table: 36 to 60 inches

A horizon:

Hue—7.5YR or 10YR

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 to 3

Reaction—neutral

Bw horizon:

Hue—7.5YR or 10YR

Value—3 to 6 dry, 2 to 4 moist

Chroma—2 or 3 dry or moist

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—neutral

Bg horizon:

Hue—7.5YR or 10YR

Value—3 to 6 dry, 2 to 4 moist

Chroma—1 or 2

Texture, fine earth fraction—loam, sandy loam, or sandy clay loam

Rock fragment content—0 to 35 percent

Predominant rock fragment size—gravel and cobbles

Reaction—neutral

Typical pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Detra Series

Setting

Depth class: Deep

Drainage class: Well drained

Landscape position: Hills

Parent material: Eolian material, slope alluvium, and residuum derived from sandstone

Slope: 0 to 15 percent

Elevation: 7,800 to 8,500 feet

Mean annual precipitation: 18 to 20 inches

Mean annual temperature: 43 to 45 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, frigid Pachic Argiustolls

Typical Pedon

Detra loam in an area of Jemco-Detra-Beje complex, 1 to 15 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; located in the southeast quarter of sec. 19, T. 39 N., R. 15 W.

A—0 to 16 inches; dark brown (10YR 3/3) loam, very dark brown (10YR 2/2) moist; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; neutral (pH 7.2); gradual smooth boundary.

BAt—16 to 30 inches; brown (7.5YR 4/3) loam, dark brown (7.5YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few distinct clay films on faces of peds and in root channels; neutral (pH 7.0); clear smooth boundary

Bt1—30 to 43 inches; light reddish brown (5YR 6/4) clay loam, reddish brown (5YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common distinct clay films on faces of peds; neutral (pH 7.2); clear smooth boundary.

Bt2—43 to 51 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, very firm, very sticky and very plastic; common distinct clay films on faces of peds; neutral (pH 7.2); clear smooth boundary.

2BC—51 to 57 inches; yellowish red (5YR 5/8) sandy clay loam, yellowish red (5YR 5/6) moist; massive; very hard, friable, moderately sticky and moderately plastic; slightly alkaline (pH 7.4); abrupt smooth boundary.

2R—57 inches; sandy shale bedrock, weathered in upper inch.

Range in Characteristics

Thickness of the mollic epipedon: 16 to 37 inches

Depth to bedrock: 40 to 60 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR
 Value—3 to 5 dry, 2 or 3 moist
 Chroma—1 to 3
 Clay content—10 to 25 percent
 Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR or 7.5YR
 Value—4 to 6 dry, 2 to 4 moist
 Chroma—2 to 6
 Texture, fine earth fraction—loam or clay loam
 Clay content—18 to 35 percent
 Reaction—neutral or slightly alkaline

2BC horizon, if present

Hue—5YR or 7.5YR
 Value—5 or 6 dry, 4 or 5 moist
 Chroma—3 or 4
 Texture, fine earth fraction—sandy clay loam
 Clay content—20 to 30 percent
 Reaction—neutral or slightly alkaline

Typical pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Dolcan Series**Setting**

Depth class: Shallow and very shallow
Drainage class: Well drained
Landscape position: Canyons and hills
Parent material: Colluvium and residuum derived from sandstone and shale
Slope: 6 to 80 percent
Elevation: 6,200 to 7,800 feet
Annual precipitation: 13 to 19 inches
Annual temperature: 46 to 50 degrees F

Taxonomic Class

Loamy, mixed, superactive, calcareous, mesic, shallow Aridic Ustorthents

Typical Pedon

Dolcan extremely cobbly fine sandy loam in an area of Wauquie-Dolcan-Rock outcrop complex, 25 to 80 percent slopes, about 1,900 feet east and 800 feet south of the northwest corner of sec. 17, T. 39 N., R. 17 W.

A—0 to 2 inches; brown (10YR 5/3) extremely cobbly fine sandy loam, brown (10YR 4/3) moist; weak fine granular structure; soft, loose, nonsticky and nonplastic; slightly effervescent; 30 percent gravel, 20 percent cobbles, 10 percent stones,

and 1 percent boulders; slightly alkaline (pH 7.6); abrupt smooth boundary.

C1—2 to 8 inches; brown (7.5YR 4/2) cobbly clay loam, dark brown (7.5YR 3/2) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; common medium and very fine roots throughout; common fine tubular pores; strongly effervescent; 15 percent gravel, 10 percent cobbles, 5 percent stones, and 1 percent boulders; slightly alkaline (pH 7.8); abrupt smooth boundary.

C2—8 to 11 inches; reddish brown (5YR 4/4) clay loam, dark reddish brown (5YR 3/4) moist; massive; slightly hard, firm, moderately sticky and moderately plastic; common very fine roots throughout; strongly effervescent; 10 percent gravel and 3 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

Cr—11 inches; soft shale, strongly effervescent.

Range in Characteristics

Depth to bedrock: 6 to 20 inches

Depth to carbonates: 0 to 20 inches

A horizon:

Hue—7.5YR or 10YR
 Value—4 to 6 dry, 3 or 4 moist
 Chroma—1 to 3
 Rock fragment content—20 to 60 percent
 Predominant rock fragment size—gravel, cobbles, and stones
 Clay content—8 to 20 percent
 Reaction—slightly alkaline

C horizon:

Hue—5YR to 10YR
 Value—3 to 7 dry, 3 to 6 moist
 Chroma—2 to 4
 Texture, fine earth fraction—clay loam or loam
 Clay content—18 to 35 percent
 Rock fragment content—5 to 35 percent
 Predominant rock fragment size—gravel and cobbles
 Reaction—slightly or moderately alkaline

Endoaquolls**Setting**

Depth class: Very deep
Drainage class: Somewhat poorly drained
Landscape position: Flood plains
Parent material: Alluvium derived from mixed sources
Slope: 0 to 5 percent
Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 18 to 20 inches

Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Endoaquolls

Reference Pedon

Endoaquolls in an area of Endoaquolls-Ustifluvents complex, 0 to 5 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; about 1,850 feet north and 1,750 feet east of the southwest corner of sec. 18, T. 40 N., R. 12 W.

- A1—0 to 4 inches; grayish brown (10YR 5/2) loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure parting to weak fine granular; slightly hard, friable, nonsticky and slightly plastic; many very fine, common fine, and few coarse and medium roots; many very fine and common fine pores; slightly effervescent; slightly alkaline (pH 7.4); clear wavy boundary.
- A2—4 to 12 inches; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine, common fine, and few coarse and medium roots; many very fine, and common fine pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
- A3—12 to 14 inches; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; common small distinct (7.5YR 5/6) iron masses; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and few fine and medium roots; many very fine pores; neutral (pH 7.2); clear smooth boundary.
- A4—14 to 19 inches; brown (10YR 4/3) loam, very dark brown (10YR 2/2) moist; common medium distinct (7.5YR 5/6) iron masses; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and few fine and medium roots; common very fine pores; neutral (pH 7.2); gradual wavy boundary.
- A5—19 to 28 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; many large distinct strong brown (7.5YR 5/6) iron masses; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine discontinuous pores; strongly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.
- 2C—28 to 60 inches; dark yellowish brown (10YR 4/4) extremely cobbly sand, dark yellowish brown

(10YR 4/4) moist; many large distinct strong brown (7.5YR 5/6) iron masses; single grain; loose nonsticky and nonplastic; few coarse roots; strongly effervescent; 35 percent gravel, 20 percent cobble, and 10 percent stones; slightly alkaline (pH 7.8).

Range in Characteristics

Thickness of the mollic epipedon: 10 to 40 inches

Depth to bedrock: more than 60 inches

Depth to water table: 12 to 60 inches

A1, A2, A3 horizons:

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3

Clay content—10 to 27 percent

Rock fragment content—0 to 10 percent

Predominant rock fragment size—gravel

Reaction—neutral or slightly alkaline

A4, A5 horizons:

Hue—5YR to 10YR

Value—4 to 6 dry, 2 to 4 moist

Chroma—2 to 4

Texture, fine earth fraction—fine sandy loam or loam

Clay content—5 to 27 percent

Rock fragment content—0 to 10 percent

Predominant rock fragment size—gravel

Reaction—neutral or slightly alkaline

2C horizon:

Hue—10YR

Value—4 or 5 dry, 4 or 5 moist

Chroma—3 to 5

Clay content—3 to 8 percent

Rock fragment content—65 to 80 percent

Predominant rock fragment size—gravel, cobbles, and stones

Reaction—neutral or slightly alkaline

Reference pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Falconry Series

Setting

Depth class: Shallow

Drainage class: Well drained

Landscape position: Canyons, ridges, and hills

Parent material: Slope alluvium and residuum derived from sandstone

Slope: 3 to 25 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Loamy, mixed, superactive, frigid Lithic Haplustolls

Typical Pedon

Falconry gravelly fine sandy loam, 3 to 25 percent slopes, about 300 feet north and 750 feet east of the southwest corner of sec. 12, T. 35 N., R. 13 W.

Oi—0 to 1 inch; slightly decomposed pine needles and leaves.

A1—1 to 5 inches; very dark gray (10YR 3/1) gravelly fine sandy loam, black (10YR 2/1) moist; weak medium and fine granular structure; loose, very friable, nonsticky and nonplastic; 15 percent gravel and 2 percent stones; neutral (pH 7.2); clear wavy boundary.

A2—5 to 14 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark brown (10YR 2/2) moist; weak fine and very fine subangular blocky structure parting to weak very fine granular; soft, very friable, nonsticky and nonplastic; 20 percent gravel; neutral (pH 7.0); clear wavy boundary.

R—14 inches; hard Dakota Sandstone.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 16 inches

Clay content: 8 to 15 percent

Depth to bedrock: 10 to 20 inches

Rock fragment content: 0 to 35 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—1 to 4

Reaction—slightly acid or neutral

C horizon, if present:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 2 to 5 moist

Chroma—2 to 4

Reaction—slightly acid or neutral

Farb Series

Setting

Depth class: Shallow and very shallow

Drainage class: Excessively drained

Landscape position: Mesas, escarpments, and canyons

Parent material: Residuum and colluvium derived from sandstone

Slope: 3 to 12 percent

Elevation: 5,000 to 5,700 feet

Mean annual precipitation: 8 to 10 inches

Mean annual temperature: 52 to 56 degrees F

Taxonomic Class

Loamy, mixed, superactive, calcareous, mesic Lithic Torriorthents

Typical Pedon

Farb sandy loam in an area of Farb-Rock outcrop complex, 3 to 12 percent slopes, about 2,300 feet south and 200 feet west of the northeast corner of sec. 28, T. 36 N., R. 19 W.

A—0 to 3 inches; strong brown (7.5YR 5/6) sandy loam, dark brown (7.5YR 4/4) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; 5 percent gravel; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C1—3 to 13 inches; light brown (7.5YR 6/4) sandy loam, brown (7.5YR 5/4) moist; weak coarse granular structure; soft, very friable, nonsticky and nonplastic; 10 percent gravel; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C2—13 to 16 inches; pink (7.5YR 7/4) sandy loam, light brown (7.5YR 6/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; 5 percent gravel; few fine filaments and soft masses of calcium carbonate; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

R—16 inches; hard Dakota Sandstone.

Range in Characteristics

Depth to bedrock: 5 to 20 inches

Depth to carbonates: 0 to 3 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 6

Clay content—5 to 18 percent

Reaction—slightly or moderately alkaline

C horizon:

Hue—7.5YR

Value—5 to 8 dry, 4 to 7 moist

Chroma—4 to 6

Clay content—5 to 18 percent

Reaction—slightly or moderately alkaline

Fardraw Series**Setting***Depth class:* Very deep*Drainage class:* Well drained*Landscape position:* Structural benches and mesas*Parent material:* Outwash derived from mixed sources*Slope:* 0 to 25 percent*Elevation:* 7,100 to 8,500 feet*Mean annual precipitation:* 17 to 20 inches*Mean annual temperature:* 41 to 47 degrees F**Taxonomic Class**

Clayey-skeletal, smectitic, frigid Typic Argiustolls

Typical Pedon

Fardraw very cobbly loam, 0 to 9 percent slopes, about 1,250 feet east, 1,380 feet north of the southwest corner of sec. 29, T. 36 N., R. 12 W.

A1—0 to 2 inches; brown (7.5YR 4/3) very cobbly loam, dark brown (7.5YR 3/2) moist; moderate coarse granular structure parting to weak fine granular; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots throughout; 25 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); clear wavy boundary.

A2—2 to 9 inches; brown (7.5YR 4/3) very cobbly loam, very dark brown (7.5YR 2.5/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots throughout and few medium roots throughout; common very fine discontinuous tubular pores; 25 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); clear wavy boundary.

AB—9 to 13 inches; brown (7.5YR 4/3) very cobbly clay loam, dark reddish brown (7.5YR 3/3) moist; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine, fine, and medium roots throughout; common very fine and few fine discontinuous tubular pores; common faint discontinuous clay films on faces of peds; 25

percent gravel, 20 percent cobbles, and 10 percent stones; neutral (pH 7.2); abrupt wavy boundary.

Bt1—13 to 28 inches; brown (7.5YR 4/4) very cobbly clay loam, dark reddish brown (7.5YR 3/4) moist; moderate medium subangular blocky structure; extremely hard, firm, moderately sticky and moderately plastic; common very fine and fine roots and few medium roots throughout; few very fine and fine discontinuous tubular pores; many distinct continuous clay films on faces of peds and in pores and many prominent continuous clay films around rock fragments; 25 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); gradual irregular boundary.

Bt2—28 to 36 inches; brown (7.5YR 5/4) very cobbly clay loam, reddish brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; extremely hard, firm, moderately sticky and moderately plastic; few medium roots throughout; few medium discontinuous tubular pores; many distinct continuous clay films on faces of peds and in pores and many prominent continuous clay films on rock fragments; 25 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); gradual wavy boundary.

Bt3—36 to 53 inches; strong brown (7.5YR 5/6) very cobbly clay loam, strong brown (7.5YR 4/6) moist; moderate medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; many distinct continuous clay films on faces of peds and in pores and many prominent continuous clay films around rock fragments; 25 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); gradual wavy boundary.

Bt4—53 to 60 inches; strong brown (7.5YR 5/6) very cobbly clay loam, brown (7.5YR 5/4) moist; moderate medium subangular blocky structure; extremely hard, firm, moderately sticky and moderately plastic; many distinct continuous clay films on faces of peds and in pores and many prominent continuous clay films around rock fragments; 25 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.6).

Range in Characteristics*Thickness of the mollic epipedon:* 10 to 16 inches*Depth to bedrock:* more than 60 inches*Rock fragment content:* 35 to 70 percent*Predominant rock fragment size:* gravel, cobbles, and stones

A horizon:

Hue—7.5YR to 10YR
 Value—3 to 5 dry, 1 to 3 moist
 Chroma—1 to 3
 Clay content—15 to 27 percent
 Reaction—slightly acid or slightly alkaline

Bt horizon:

Hue—7.5YR or 10YR
 Value—4 to 6 dry, 3 to 5 moist
 Chroma—3 to 6
 Clay content—35 to 50 percent
 Reaction—slightly acid or slightly alkaline

C horizon, if present:

Hue—7.5YR to 2.5Y
 Value—5 to 7 dry, 4 to 6 moist
 Chroma—3 to 6
 Texture, fine earth fraction—sandy clay loam,
 clay loam, or clay
 Reaction—slightly acid or slightly alkaline

Fivepine Series**Setting**

Depth class: Shallow
Drainage class: Well drained
Landscape position: Mesas and hills
Parent material: Residuum and slope alluvium
 derived from sandstone
Slope: 0 to 15 percent
Elevation: 7,100 to 8,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual temperature: 41 to 47 degrees F

Taxonomic Class

Clayey, smectitic, frigid Lithic Argiustolls

Typical Pedon

Fivepine flaggy loam, in an area of Fivepine-Nortez complex, 0 to 15 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; about 620 feet south and 100 feet east of the northwest corner of sec. 33, T. 42 N., R. 17 W.

A—0 to 3 inches; reddish brown (5YR 4/3) flaggy loam, dark reddish brown (5YR 3/2) moist; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; 5 percent gravel, 5 percent cobbles, and 20 percent flagstones; neutral (pH 6.6); clear smooth boundary.

BA—3 to 9 inches; reddish brown (5YR 4/3) flaggy clay loam, dark reddish brown (5YR 3/3) moist;

moderate medium subangular blocky structure parting to moderate fine subangular blocky; hard, firm, moderately sticky and moderately plastic; 5 percent gravel, 5 percent cobbles, and 20 percent flagstones; neutral (pH 6.6); clear wavy boundary.

Bt1—9 to 12 inches; reddish brown (5YR 4/4) flaggy clay loam, reddish brown (5YR 4/3) moist; strong medium subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; common distinct clay films on faces of peds; 5 percent gravel, 5 percent cobbles, and 20 percent flagstones; neutral (pH 6.6); clear smooth boundary.

Bt2—12 to 15 inches; yellowish red (5YR 4/6) flaggy clay, reddish brown (5YR 4/3) moist; strong medium subangular blocky structure; extremely hard, very firm, very sticky and very plastic; many prominent clay films on faces of peds; 5 percent gravel, 5 percent cobbles, and 20 percent flagstones; common manganese concretions; neutral (pH 6.6); abrupt smooth boundary.

R—15 inches; hard Dakota Sandstone.

Range in Characteristics

Thickness of the mollic epipedon: 5 to 15 inches
Depth to bedrock: 10 to 20 inches
Rock fragment content: 15 to 35 percent
Predominant rock fragment size: flagstones

A horizon:

Hue—5YR to 10YR
 Value—4 or 5 dry, 2 or 3 moist
 Chroma—2 to 4 dry, 1 to 3 moist
 Clay content—10 to 27 percent
 Reaction—slightly acid to slightly alkaline

Bt horizon:

Hue—5YR or 7.5YR
 Value—3 to 6 dry, 3 to 5 moist
 Chroma—3 to 6
 Texture, fine earth fraction—clay loam or clay
 Clay content—35 to 50 percent
 Reaction—slightly acid to slightly alkaline

Typical pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Fluvaquents**Setting**

Depth class: Very deep
Drainage class: Somewhat poorly drained

Landscape position: Flood plains and drainageways
Parent material: Alluvium derived from mixed sources
Slope: 0 to 5 percent
Elevation: 5,000 to 7,400 feet
Mean annual precipitation: 8 to 16 inches
Mean annual temperature: 46 to 56 degrees F

Taxonomic Class

Fluvaquents

Reference Pedon

Fluvaquents in an area of Fluvents-Fluvaquents complex, 0 to 3 percent slopes, about 100 feet north and 900 feet east of the southwest corner of sec. 9, T. 39 N., R. 18 W.

- C1—0 to 8 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 3/3) moist; single grain; loose nonsticky and nonplastic; many very fine, common fine and coarse, and few medium roots throughout; many very fine interstitial pores; slightly effervescent; slightly alkaline (pH 7.4); clear smooth boundary.
- C2—8 to 17 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 3/4) moist; common medium irregular prominent (7.5YR 5/8) iron masses; single grain; loose nonsticky and nonplastic; few very fine and fine, and common medium roots throughout; many very fine interstitial pores; slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
- C3—17 to 34 inches; yellowish brown (10YR 5/4) loamy sand, dark yellowish brown (10YR 3/4) moist; many medium irregular prominent strong brown (7.5YR 5/8) iron masses; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine, common fine, medium, and coarse roots throughout; many very fine interstitial pores; strongly effervescent; slightly alkaline (pH 7.6); clear wavy boundary.
- C4—34 to 60 inches; yellowish brown (10YR 5/4) very gravelly loamy sand, dark brown (10YR 3/3) moist; many medium irregular distinct strong brown (7.5YR 5/6) iron masses; single grain; loose nonsticky and nonplastic; common very fine, fine, medium, and coarse roots throughout; many very fine interstitial pores; slightly effervescent; 35 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6).

Range in Characteristics

Depth to bedrock: more than 60 inches
Rock fragment content: 0 to 60 percent
Predominant rock fragment size: gravel and cobbles
Depth to water table: 12 to 40 inches

C horizon:

Hue—7.5YR or 10YR
 Value—5 or 6 dry, 3 to 5 moist
 Chroma—3 or 4
 Texture, fine earth fraction—loamy sand or sandy loam
 Clay content—2 to 10 percent
 Reaction—neutral or slightly alkaline

Fluvents

Setting

Depth class: Very deep
Drainage class: Somewhat excessively drained
Landscape position: Flood plains
Parent material: Alluvium derived from mixed sources
Slope: 0 to 3 percent
Elevation: 5,000 to 7,400 feet
Mean annual precipitation: 8 to 16 inches
Mean annual temperature: 46 to 56 degrees F

Taxonomic Class

Fluvents

Reference Pedon

Fluvents in an area of Fluvents-Fluvaquents complex, 0 to 3 percent slopes, about 1,300 feet south and 800 feet east of the northwest corner of sec. 25, T. 37 N., R. 18 W.

- A—0 to 6 inches; dark brown (7.5YR 3/4) fine sandy loam, dark brown (7.5YR 3/4) moist; moderate coarse platy structure parting to moderate medium platy; slightly hard, friable, slightly sticky and nonplastic; strongly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.
- C1—6 to 9 inches; yellowish brown (10YR 5/4) very gravelly loamy coarse sand, dark yellowish brown (10YR 3/4) moist; single grain; loose nonsticky and nonplastic; slightly effervescent; 50 percent gravel; slightly alkaline (pH 7.8); clear wavy boundary.
- C2—9 to 18 inches; light yellowish brown (10YR 6/4) loamy sand, dark yellowish brown (10YR 4/4) moist; single grain; loose nonsticky and

nonplastic; strongly effervescent; 6 percent gravel; moderately alkaline (pH 8.2); clear wavy boundary.

C3—18 to 30 inches; light yellowish brown (10YR 6/4) very gravelly sand, yellowish brown (10YR 5/4) moist; single grain; loose nonsticky and nonplastic; slightly effervescent; 50 percent gravel; moderately alkaline (pH 8.2); clear wavy boundary.

C4—30 to 34 inches; light yellowish brown (10YR 6/4) gravelly sand, yellowish brown (10YR 5/4) moist; single grain; loose nonsticky and nonplastic; slightly effervescent; 20 percent gravel; moderately alkaline (pH 8.0); gradual wavy boundary

C5—34 to 60 inches; light yellowish brown (10YR 6/4) very gravelly coarse sand, yellowish brown (10YR 5/4) moist; single grain; loose nonsticky and nonplastic; slightly effervescent; 45 percent gravel; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: more than 60 inches

Rock fragment content: 0 to 60 percent

Predominant rock fragment size: gravel

A horizon:

Hue—5YR to 2.5Y

Value—3 or 4 dry, 3 or 4 moist

Chroma—3 or 4

Clay content—5 to 15 percent

Reaction—slightly or moderately alkaline

C horizon:

Hue—5YR to 2.5Y

Value—5 or 6 dry, 3 to 5 moist

Chroma—4 or 5

Texture, fine earth fraction—loamy coarse sand, loamy sand, or sand

Clay content—5 to 15 percent

Reaction—slightly or moderately alkaline

Fughes Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Draws, hills, and drainageways

Parent material: Alluvium, slope alluvium, and colluvium derived from sandstone and shale

Slope: 0 to 30 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual temperature: 40 to 47 degrees F

Taxonomic Class

Fine, smectitic, frigid Pachic Argiustolls

Typical Pedon

Fughes loam, 1 to 12 percent slopes, about 1,390 feet east and 250 feet north of the southwest corner of sec. 10, T. 38 N., R. 16 W.

A1—0 to 4 inches; brown (7.5YR 5/2) loam, dark brown (7.5YR 3/2) moist; moderate medium platy structure parting to weak fine granular; slightly hard, friable, slightly sticky and slightly plastic; neutral (pH 6.6); abrupt smooth boundary.

A2—4 to 13 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; neutral (pH 6.6); clear wavy boundary.

AB—13 to 21 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; hard, firm, very sticky and very plastic; neutral (pH 6.6); gradual wavy boundary.

Bt1—21 to 30 inches; dark grayish brown (10YR 4/2) clay, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to strong medium subangular blocky; extremely hard, firm, very sticky and very plastic; neutral (pH 6.6); clear wavy boundary.

Bt2—30 to 50 inches; brown (10YR 5/3) clay, brown (10YR 4/3) moist; strong medium prismatic structure parting to strong medium subangular blocky; extremely hard, very firm, very sticky and very plastic; neutral (pH 6.8); clear smooth boundary.

2Btb—50 to 60 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; strong medium prismatic structure parting to strong medium subangular blocky; extremely hard, firm, very sticky and very plastic; neutral (pH 6.8).

Range in Characteristics

Thickness of the mollic epipedon: 16 to 40 inches

Depth to bedrock: more than 60 inches

Depth to carbonates: 40 to more than 60 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3

Clay content—15 to 35 percent

Reaction—slightly acid or neutral

Bt horizon:

Hue—5YR to 10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 5

Texture, fine earth fraction—clay loam or clay

Clay content—35 to 60 percent

Reaction—slightly acid or neutral

Gapmesa Series

Setting

Depth class: Moderately deep

Drainage class: Well drained

Landscape position: Mesas and hills

Parent material: Eolian material derived from sandstone

Slope: 2 to 12 percent

Elevation: 5,400 to 6,200 feet

Mean annual precipitation: 10 to 13 inches

Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, mesic Ustic Haplargids

Typical Pedon

Gapmesa very fine sandy loam in an area of Barx-Gapmesa complex, 2 to 6 percent slopes, about 650 feet east and 2,400 feet south of the northwest corner of sec. 17, T. 37 N., R. 19 W.

A—0 to 2 inches; brown (7.5YR 5/4) very fine sandy loam, brown (7.5YR 4/4) moist; moderate very coarse platy structure; slightly hard, friable, nonsticky and nonplastic; few very fine roots throughout; common very fine vesicular pores; 3 percent gravel; neutral (pH 7.2); abrupt smooth boundary.

Bt1—2 to 8 inches; yellowish red (5YR 4/6) gravelly very fine sandy loam, reddish brown (5YR 4/4) moist; moderate coarse subangular blocky structure parting to moderate medium subangular

blocky; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots throughout; few very fine discontinuous tubular pores; many faint continuous clay films on faces of peds and in pores; 18 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—8 to 21 inches; yellowish red (5YR 4/6) gravelly very fine sandy loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium roots throughout; few very fine discontinuous tubular pores; many faint continuous clay films on faces of peds and in pores; 22 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bk—21 to 28 inches; light reddish brown (5YR 6/4) gravelly fine sandy loam, reddish brown (5YR 5/4) moist; massive; very hard, friable, nonsticky and nonplastic; few very fine roots in cracks; common irregular carbonate threads throughout; strongly effervescent; 33 percent gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.

R—28 inches; hard Dakota Sandstone.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

Rock fragment content: 0 to 35 percent

Predominant rock fragment size: gravel

A horizon:

Hue—5YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Clay content—8 to 15 percent

Reaction—neutral

B horizon:

Hue—5YR

Value—4 to 6 dry, 4 or 5 moist

Chroma—3 to 5

Texture, fine earth fraction—very fine sandy loam, fine sandy loam, or loam

Clay content—18 to 27 percent

Reaction—slightly or moderately alkaline

Gladel Series

Setting

Depth class: Shallow

Drainage class: Well drained

Landscape position: Mesas and hills

Parent material: Eolian material and residuum derived from sandstone

Slope: 3 to 9 percent

Elevation: 6,200 to 7,400 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Loamy, mixed, superactive, mesic Aridic Lithic Haplustepts

Typical Pedon

Gladel flaggy fine sandy loam in an area of Gladel-Pulpit complex, 3 to 9 percent slopes, about 200 feet south and 2,300 feet west of the northeast corner of sec. 18, T. 41 N., R. 19 W.

A—0 to 5 inches; light reddish brown (5YR 6/3) flaggy fine sandy loam, reddish brown (5YR 4/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; 10 percent gravel, 10 percent flagstones, and 2 percent stones; strongly effervescent; moderately alkaline (pH 8.1); clear smooth boundary.

Bw—5 to 10 inches; light reddish brown (5YR 6/3) flaggy fine sandy loam, reddish brown (5YR 4/3) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; 15 percent gravel and 15 percent flagstones; strongly effervescent; moderately alkaline (pH 8.1); gradual wavy boundary.

Bk—10 to 15 inches; pinkish gray (5YR 7/2) flaggy fine sandy loam, pinkish gray (5YR 6/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; 10 percent gravel and 20 percent flagstones; common fine soft masses of calcium carbonate on bottom of coarse fragments; violently effervescent; moderately alkaline (pH 8.1); abrupt wavy boundary.

R—15 inches; hard Dakota Sandstone.

Range in Characteristics

Depth to bedrock: 12 to 20 inches

Depth to carbonates: 0 to 17 inches

Rock fragment content: 0 to 35 percent

Predominant rock fragment size: gravel and flagstones

A horizon:

Hue—5YR to 10YR

Value—5 to 7 dry, 3 to 6 moist

Chroma—1 to 4

Clay content—5 to 18 percent

Reaction—slightly or moderately alkaline

B horizon:

Hue—5YR or 7.5YR

Value—5 to 7 dry, 3 to 6 moist

Chroma—2 to 4

Texture, fine earth fraction—fine sandy loam or sandy loam

Clay content—5 to 18 percent

Reaction—moderately alkaline

Goldbug Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Hills and mountain slopes

Parent material: Slope alluvium derived from sandstone and shale

Slope: 5 to 30 percent

Elevation: 7,400 to 7,600 feet

Mean annual precipitation: 18 to 20 inches

Mean annual temperature: 41 to 46 degrees F

Taxonomic Class

Fine, smectitic, frigid Typic Haplustalfs

Typical Pedon

Goldbug very stony fine sandy loam, 5 to 30 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; about 600 feet west and 200 feet north of the southeast corner of sec. 36, T. 36 N., R. 9 W.

Oi—0 to 1 inch; slightly decomposed organic material of needles, leaves, and roots. (0 to 3 inches thick)

E1—1 to 10 inches; pinkish gray (5YR 6/2) very stony fine sandy loam, dark reddish gray (5YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; 5 percent gravel, 15 percent cobble, and 30 percent stones; many fine and medium roots; few fine pores; neutral (pH 6.8); clear smooth boundary.

E2—10 to 21 inches; pinkish gray (5YR 7/2) very stony fine sandy loam, pinkish gray (5YR 6/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; 5 percent gravel, 20 percent cobble, and 20 percent stones; many medium and fine roots; few fine pores; neutral (pH 6.6); gradual wavy boundary.

B/E—21 to 29 inches; (70 percent B) light reddish brown (5YR 6/4) stony sandy clay loam, reddish brown (5YR 5/4) moist; and (30 percent E) light reddish brown (5YR 6/3) stony fine sandy loam, reddish brown (5YR 5/4) moist; moderate medium subangular blocky structure that parts to moderate fine granular; slightly hard, friable,

slightly sticky and slightly plastic; few distinct clay films on faces of peds of B part; 5 percent gravel, 10 percent cobble, and 15 percent stones; few medium and fine roots; few fine pores; neutral (6.8); clear smooth boundary.

Bt—29 to 60 inches; reddish brown (5YR 5/4) stony clay, reddish brown (5YR 4/4) moist; weak medium prismatic structure parting to moderate medium angular blocky; very hard, very firm, moderately sticky and moderately plastic; many distinct clay films on faces of peds; few fine roots; 5 percent gravel, 10 percent cobble, and 10 percent stones; neutral (pH 6.8).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: more than 60 inches

E horizon:

Hue—2.5YR or 5YR

Value—5 to 8 dry, 4 to 7 moist

Chroma—2 to 4 dry or moist

Clay content—6 to 15 percent

Rock fragment content—30 to 50 percent

Predominant rock fragment size—cobbles and stones

Reaction—slightly acid or neutral

B/E horizon:

B part:

Hue—2.5YR or 5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 to 6 dry or moist

Texture, fine earth fraction—sandy clay loam, clay, or clay loam

Clay content—35 to 50 percent

Reaction—slightly acid or neutral

E part:

Hue—2.5YR or 5YR

Value—6 or 7 dry, 5 or 6 moist

Chroma—3 or 4 dry, 4 or 5 moist

Texture, fine earth fraction—sandy loam or fine sandy loam

Reaction—slightly acid or neutral

Bt horizon:

Hue—2.5YR or 5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 to 6

Texture, fine earth fraction—sandy clay, clay, or clay loam

Rock fragments—15 to 35 percent

Predominant rock fragment size—cobbles and stones

Reaction—slightly acid or neutral

C horizon, if present:

Hue—2.5YR or 5YR

Value—5 to 7 dry, 4 to 6 moist

Chroma—3 to 6

Texture, fine earth fraction—sandy clay loam, clay, or clay loam

Rock fragments—15 to 60 percent

Predominant rock fragment size—gravel, cobbles, and stones

Reaction—slightly acid or neutral

Typical pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Granath Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Mesas, alluvial fans, and hills

Parent material: Eolian material derived from sandstone

Slope: 0 to 15 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual temperature: 40 to 47 degrees F

Taxonomic Class

Fine-silty, mixed, superactive, frigid Typic Argiustolls

Typical Pedon

Granath loam, 3 to 6 percent slopes, about 250 feet west and 300 feet north of the southeast corner of sec. 10, T. 36 N., R. 13 W.

Oi—0 to 1 inch; slightly decomposed organic material consisting of leaves, twigs, bark, and grasses.

A1—1 to 9 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; strong fine granular structure; soft, very friable, slightly sticky and slightly plastic; neutral (pH 7.0); clear smooth boundary.

A2—9 to 14 inches; brown (7.5YR 5/2) loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure parting to strong fine and very fine granular; slightly hard, very friable, slightly sticky and slightly plastic; neutral (pH 7.0); clear smooth boundary

Bt1—14 to 36 inches; reddish brown (5YR 5/3) clay loam, reddish brown (5YR 4/3) moist; moderate medium prismatic structure parting to strong fine and medium angular blocky; friable, slightly hard, slightly sticky and slightly plastic; common

distinct clay films on faces of peds and in pores; neutral (pH 7.2); gradual smooth boundary.

Bt2—36 to 53 inches; light reddish brown (5YR 6/4) clay loam, reddish brown (5YR 4/4) moist; moderate coarse and medium prismatic structure parting to strong medium angular blocky; hard, very friable, slightly sticky and slightly plastic; common distinct clay films on faces of peds and in pores; slightly alkaline (pH 7.6); gradual smooth boundary.

Bt3—53 to 60 inches; light reddish brown (5YR 6/4) clay loam, reddish brown (5YR 4/4) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few faint clay films on faces of peds and in pores; slightly alkaline (pH 7.6); clear wavy boundary.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 16 inches

Depth to bedrock: more than 60 inches

Depth to carbonates: 30 to more than 60 inches

Rock fragment content: 0 to 5 percent

Predominant rock fragment size: gravel

A horizon:

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Clay content—10 to 27 percent

Reaction—neutral

Bt horizon:

Hue—5YR

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4

Texture, fine earth fraction—clay loam or loam

Clay content—20 to 35 percent

Reaction—neutral or slightly alkaline

Bk horizon, if present:

Hue—5YR or 7.5YR or 7.5YR

Texture, fine earth fraction—clay loam or loam

Clay content—20 to 35 percent

Reaction—moderately alkaline

Haplustalfs

Setting

Depth class: Shallow to very deep

Drainage class: Well drained

Landscape position: Canyons

Parent material: Colluvium and slope alluvium derived from sandstone and shale

Slope: 30 to 80 percent

Elevation: 6,900 to 8,500 feet

Annual precipitation: 15 to 20 inches

Annual temperature: 40 to 47 degrees F

Taxonomic Class

Haplustalfs

Reference Pedon

Haplustalfs in an area of Argiustolls-Haplustalfs-Rock outcrop complex, 30 to 80 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; located in the southeast quarter of the northwest quarter of sec. 7, T. 41 N., R. 17 W.

A1—0 to 2 inches; brown (10YR 5/3) very stony loam, very dark grayish brown (10YR 3/2) moist; moderate coarse platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; 10 percent gravel, 10 percent cobbles, and 20 percent stones; neutral (pH 7.0); clear wavy boundary.

A2—2 to 5 inches; brown (10YR 5/3) very stony loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; 10 percent gravel, 10 percent cobbles, and 35 percent stones; neutral (pH 7.0); clear wavy boundary.

EB—5 to 10 inches; very pale brown (10YR 7/3) very stony clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; 10 percent gravel, 10 percent cobbles, and 35 percent stones; slightly acid (pH 6.4); clear wavy boundary.

Bt1—10 to 24 inches; pale brown (10YR 6/3) very stony clay, brown (10YR 5/3) moist; strong medium angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine, fine, and medium roots; common faint clay films on faces of peds; 10 percent gravel, 10 percent cobbles, and 35 percent stones; neutral (pH 7.0); gradual wavy boundary.

Bt2—24 to 41 inches; light yellowish brown (10YR 6/4) very stony clay, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine, fine, and medium roots; common faint clay films on the faces of peds; 10 percent gravel, 10 percent cobbles, and 35 percent stones; neutral (pH 7.0); gradual wavy boundary.

CB1—41 to 55 inches; light yellowish brown (10YR

6/4) very stony clay, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; 10 percent gravel, 10 percent cobbles, and 35 percent stones; neutral (pH 7.0); gradual wavy boundary.

CB2—55 to 60 inches; light yellowish brown (10YR 6/4) extremely stony clay, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; 25 percent gravel, 10 percent cobbles, and 35 percent stones; neutral (pH 7.0).

Range in Characteristics

Depth to bedrock: 10 to more than 60 inches

Rock fragment content: 10 to 60 percent

Predominant rock fragment size: gravel, cobbles, and stones

A horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—1 to 3

Clay content—15 to 27 percent

Reaction—slightly acid or neutral

EB horizon:

Hue—7.5YR or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Clay content—18 to 35 percent

Reaction—slightly acid or neutral

Bt horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4

Clay content—27 to 50 percent

Reaction—slightly acid to slightly alkaline

Reference pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Haplustolls

Setting

Depth class: Very deep

Drainage class: Well or moderately well drained

Landscape position: Flood plains and drainageways

Parent material: Alluvium derived from mixed sources

Slope: 0 to 5 percent

Elevation: 6,200 to 7,400 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Haplustolls

Reference Pedon

Haplustolls in an area of Fluvaquents-Haplustolls complex, 0 to 5 percent slopes, located in the southwest quarter of the southeast quarter of sec. 34, T. 39 N., R. 16 W.

A—0 to 4 inches; grayish brown (10YR 5/2) sandy loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure parting to weak very fine granular; soft, very friable, nonsticky and nonplastic; 5 percent gravel and 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

BA—4 to 11 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure parting to weak fine subangular blocky; hard, friable, nonsticky and slightly plastic; 10 percent gravel and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bw—11 to 19 inches; brown (10YR 4/3) loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; very hard, friable, nonsticky and slightly plastic; slightly effervescent; 15 percent gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.

2C1—19 to 24 inches; brown (10YR 5/3) gravelly loamy sand, dark brown (10YR 3/3) moist; single grain; loose nonsticky and nonplastic; slightly effervescent; 25 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

2C2—24 to 60 inches; very pale brown (10YR 7/3) extremely cobbly sand, pale brown (10YR 6/3) moist; single grain; loose nonsticky and nonplastic; strongly effervescent; 45 percent gravel, 35 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.0).

Range in Characteristics

Thickness of the mollic epipedon: more than 10 inches

Depth to bedrock: more than 60 inches

A horizon:

Hue—7.5YR or 10YR

Value—4 or 5 dry, 1 to 3 moist

Chroma—1 to 3

Clay content—10 to 20 percent
 Rock fragment content—0 to 15 percent
 Predominant rock fragment size—gravel and cobbles
 Reaction—neutral or slightly alkaline

Bw horizon, when present:

Hue—7.5YR or 10YR
 Value—4 to 6 dry, 3 to 5 moist
 Chroma—2 to 6
 Texture, fine earth fraction—loam or fine sandy loam
 Clay content—10 to 25 percent
 Rock fragment content—0 to 15 percent
 Predominant rock fragment size—gravel and cobbles
 Reaction—neutral or slightly alkaline

2C horizon:

Hue—7.5YR to 2.5Y
 Value—5 to 7 dry, 3 to 6 moist
 Chroma—3 to 5
 Clay content—5 to 18 percent
 Rock fragment content—15 to 80 percent
 Predominant rock fragment size—gravel and cobbles
 Reaction—neutral or moderately alkaline

Herm Series

Setting

Depth class: Very deep
Drainage class: Well drained
Landscape position: Hills, structural benches, mesas, and alluvial fans
Parent material: Eolian material and slope alluvium derived from shale and sandstone
Slope: 0 to 40 percent
Elevation: 7,100 to 8,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual temperature: 40 to 47 degrees F

Taxonomic Class

Fine, smectitic, frigid Typic Argiustolls

Typical Pedon

Herm loam in an area of Fughes-Herm complex, 5 to 25 percent slopes, 1,000 feet north and 780 feet east of the southwest corner of sec. 5, T. 36 N., R. 12 W.

A—0 to 6 inches; dark grayish brown (10YR 4/3) loam, dark brown (10YR 2/1) moist; moderate

medium granular structure; soft, friable, slightly sticky and slightly plastic; common very fine roots throughout; neutral (pH 6.8); clear smooth boundary.

AB—6 to 13 inches; dark brown (10YR 3/3) clay loam, very dark gray (10YR 3/1) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots throughout; neutral (pH 6.6); clear smooth boundary.

Bt1—13 to 17 inches; grayish brown (10YR 5/2) clay loam, dark grayish brown (10YR 4/2) moist; strong medium angular and subangular blocky structure; hard, firm, very sticky and very plastic; common very fine roots throughout; few very fine discontinuous tubular pores; few distinct discontinuous clay films on surfaces of peds; neutral (pH 6.6); gradual wavy boundary.

Bt2—17 to 45 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; strong medium angular and subangular blocky structure; very hard, very firm, very sticky and very plastic; common very fine and fine roots throughout; common very fine discontinuous tubular pores; many prominent continuous clay films on faces of peds and in pores; 5 percent gravel; neutral (pH 6.6); gradual wavy boundary.

BC—45 to 60 inches; grayish brown (10YR 5/2) clay loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few faint patchy clay films on faces of peds and in pores; neutral (pH 7.0).

Range in Characteristics

Thickness of the mollic epipedon: 10 to 16 inches
Depth to bedrock: more than 60 inches
Depth to carbonates: 35 to more than 60 inches
Rock fragment content: 0 to 30 percent
Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR
 Value—3 to 5 dry, 2 or 3 moist
 Chroma—1 to 3
 Clay content—10 to 27 percent
 Reaction—slightly acid to slightly alkaline

Bt1 horizon:

Hue—5YR to 10YR
 Value—4 to 6 dry, 3 or 4 moist
 Chroma—2 to 4
 Texture, fine earth fraction—clay loam, clay, or silty clay loam

Clay content—35 to 50 percent
Reaction—slightly acid to slightly alkaline

Bt2 horizon:

Hue—10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—4 to 6
Texture, fine earth fraction—clay loam or clay
Clay content—35 to 50 percent
Reaction—slightly acid to slightly alkaline

BC or Bk horizon:

Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 to 7 moist
Chroma—2 to 6
Texture, fine earth fraction—clay loam or clay
Clay content—27 to 50 percent
Reaction—neutral to moderately alkaline

Hesperus Series

Setting

Depth class: Very deep
Drainage class: Moderately well drained
Landscape position: Alluvial fans, drainageways, structural benches, and hills
Parent material: Alluvium derived from sandstone and shale
Slope: 0 to 12 percent
Elevation: 7,100 to 8,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, frigid Pachic Argiustolls

Typical Pedon

Hesperus loam, 3 to 6 percent slopes, about 2,100 feet east and 175 feet north of the southwest corner of sec. 22, T. 37 N., R. 14 W.

A—0 to 6 inches; dark gray (10YR 4/1) loam, black (10YR 2/1) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; neutral (pH 6.8); clear smooth boundary.

BAt—6 to 11 inches; dark gray (10YR 4/1) loam, black (10YR 2/1) moist; weak medium prismatic structure parting to moderate fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few faint clay films on faces of peds; neutral (pH 6.9); clear smooth boundary.

Bt1—11 to 29 inches; dark grayish brown (10YR 4/2) clay loam, very dark brown (10YR 2/2) moist;

moderate medium prismatic structure parting to moderate fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many faint clay films on faces of peds and in pores; neutral (pH 7.0); clear smooth boundary.

Bt2—29 to 38 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many faint clay films on faces of peds and in pores; neutral (pH 7.0); clear smooth boundary.

Bt3—38 to 44 inches; brown (10YR 5/3) clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few faint clay films on faces of peds; neutral (pH 7.2); gradual smooth boundary.

C—44 to 60 inches; brown (10YR 5/3) loam, dark brown (10YR 4/3) moist; few fine distinct pale brown (10YR 6/3) moist, iron masses; massive; hard, friable, slightly sticky and slightly plastic; neutral (pH 7.2).

Range in Characteristics

Thickness of the mollic epipedon: 17 to 50 inches
Depth to bedrock: more than 60 inches
Depth to carbonates: 40 to more than 60 inches
Rock fragment content: 0 to 15 percent
Predominant rock fragment size: gravel

A horizon:

Hue—10YR or 2.5Y
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3
Texture, fine earth fraction—loam or sandy loam
Clay content—12 to 25 percent
Reaction—slightly acid to slightly alkaline

Bt horizon:

Hue—10YR or 2.5Y
Value—3 to 7 dry, 2 to 6 moist
Chroma—1 to 4
Texture, fine earth fraction—loam, sandy clay loam, or clay loam
Clay content—18 to 35 percent
Reaction—slightly acid to slightly alkaline

C horizon:

Hue—10YR or 2.5Y
Value—4 to 6 dry, 4 or 5 moist
Chroma—3 to 6
Texture, fine earth fraction—loam or clay loam
Clay content—18 to 35 percent
Reaction—slightly acid to slightly alkaline

Ilex Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Hills

Parent material: Eolian material over residuum derived from sandstone and shale

Slope: 2 to 25 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Fine, smectitic, frigid Calcic Haplustalfs

Typical Pedon

Ilex loam in an area of *Ilex-Granath* complex, 2 to 6 percent slopes, about 400 feet west and 1,850 feet south of the northeast corner of sec. 4, T. 38 N., R. 16 W.

A—0 to 2 inches; reddish brown (5YR 5/3) loam, dark reddish brown (5YR 3/3) moist; moderate medium platy structure parting to weak medium granular; soft, very friable, nonsticky and nonplastic; neutral (pH 7.0); abrupt smooth boundary.

BA—2 to 6 inches; reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; neutral (pH 7.0); clear wavy boundary.

Bt1—6 to 12 inches; reddish brown (5YR 4/4) clay loam, dark reddish brown (5YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, very sticky and very plastic; neutral (pH 7.0); clear wavy boundary.

Bt2—12 to 22 inches; yellowish red (5YR 4/6) clay loam, yellowish red (5YR 4/6) moist; strong coarse prismatic structure parting to strong medium angular blocky; extremely hard, very firm, very sticky and very plastic; slightly alkaline (pH 7.5); abrupt wavy boundary.

2Btk—22 to 37 inches; light yellowish brown (10YR 6/4) clay, yellowish brown (10YR 5/4) moist; strong medium prismatic structure parting to strong medium angular blocky; extremely hard, very firm, very sticky and very plastic; common large soft seams of calcium carbonate; violently

effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

2Bk1—37 to 44 inches; very pale brown (10YR 7/4) clay, light yellowish brown (10YR 6/4) moist; strong medium prismatic structure parting to moderate medium subangular blocky; very hard, very firm, very sticky and very plastic; common large soft seams and soft masses of calcium carbonate; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

2Bk2—44 to 60 inches; brownish yellow (10YR 6/6) clay, brownish yellow (10YR 6/6) moist; massive; very hard, very firm, very sticky and very plastic; common large soft seams of calcium carbonate; violently effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 14 to 30 inches

Depth to calcic horizon: 25 to 40 inches

A horizon:

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4

Clay content—18 to 27 percent

Rock fragment content—0 to 5 percent

Predominant rock fragment size—gravel

Reaction—neutral to moderately alkaline

Bt horizon:

Hue—5YR to 10YR

Value—3 to 7 dry, 3 to 7 moist

Chroma—2 to 6

Texture, fine earth fraction—clay loam or clay

Clay content—35 to 50 percent

Rock fragment content—0 to 10 percent

Predominant rock fragment size—gravel

Reaction—neutral to moderately alkaline

Bk horizon:

Hue—7.5YR to 2.5Y

Value—6 to 8 dry, 5 to 8 moist

Chroma—2 to 6

Texture, fine earth fraction—loam, clay loam, or clay

Clay content—20 to 50 percent

Rock fragment content—0 to 5 percent

Predominant rock fragment size—gravel

Calcium carbonate equivalent—5 to 40 percent

Reaction—moderately alkaline

Irak Series**Setting**

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landscape position: Draws and drainageways

Parent material: Alluvium derived from reworked
eolian material

Slope: 0 to 3 percent

Elevation: 6,200 to 7,400 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine-silty, mixed, superactive, mesic Cumulic
Haplustolls

Typical Pedon

Irak loam, 0 to 3 percent slopes, about 175 feet east
and 750 feet south of the northwest corner of sec. 29,
T. 38 N., R. 17 W.

A—0 to 8 inches; reddish brown (5YR 5/3) loam, dark
reddish brown (5YR 3/3) moist; weak medium
subangular blocky structure parting to weak fine
granular; slightly hard, friable, slightly sticky and
slightly plastic; slightly effervescent; slightly
alkaline (pH 7.5); abrupt smooth boundary.

C1—8 to 13 inches; reddish brown (5YR 4/3) loam,
dark reddish brown (5YR 3/3) moist; strong thick
platy structure; hard, friable, slightly sticky and
slightly plastic; slightly effervescent; slightly
alkaline (pH 7.6); abrupt smooth boundary.

C2—13 to 43 inches; reddish brown (5YR 4/3) loam,
dark reddish brown (5YR 3/3) moist; weak coarse
prismatic structure parting to weak coarse
subangular blocky; hard, friable, slightly sticky
and slightly plastic; slightly effervescent; slightly
alkaline (pH 7.5); clear smooth boundary.

C3—43 to 60 inches; reddish brown (5YR 4/3) loam,
dark reddish brown (5YR 3/3) moist; weak
medium subangular blocky structure; very hard,
friable, slightly sticky and slightly plastic; slightly
effervescent; slightly alkaline (pH 7.6).

Range in Characteristics

Thickness of the mollic epipedon: 20 to 60 inches

Depth to bedrock: more than 60 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

Depth to water table: 12 to 36 inches

A horizon:

Hue—5YR or 7.5YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3

Clay content—10 to 27 percent

Reaction—neutral to moderately alkaline

C horizon:

Hue—5YR or 7.5YR

Value—3 to 5 dry, 2 to 4 moist

Chroma—2 to 4

Clay content—18 to 35 percent

Reaction—neutral to moderately alkaline

Jemco Series**Setting**

Depth class: Moderately deep

Drainage class: Well drained

Landscape position: Hills and mesas

Parent material: Eolian material and residuum derived
from sandstone

Slope: 1 to 15 percent

Elevation: 7,800 to 8,500 feet

Mean annual precipitation: 18 to 20 inches

Mean annual temperature: 43 to 46 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, frigid Typic
Haplustalfs

Typical Pedon

Jemco silt loam in an area of Jemco-Detra-Beje
complex, 1 to 15 percent slopes, from the adjoining
Animas-Dolores soil survey area; located about
1,200 feet east and 2,100 feet north of the southwest
corner of sec. 27, T. 40 N., R. 16 W.

A1—0 to 2 inches; brown (10YR 5/3) silt loam, dark
brown (7.5YR 3/2) moist; weak fine granular
structure; soft, friable, nonsticky and nonplastic;
neutral (pH 6.6); clear smooth boundary.

A2—2 to 7 inches; brown (7.5YR 5/2) silt loam, dark
brown (7.5YR 3/2) moist; weak medium
subangular blocky structure parting to weak fine
granular; hard, very friable, slightly sticky and
nonplastic; slightly acid (pH 6.4); clear wavy
boundary.

BE—7 to 14 inches; light reddish brown (5YR 6/4)
loam, reddish brown (5YR 4/3) moist; weak
medium subangular blocky structure; hard, very
friable, slightly sticky and nonplastic; slightly acid
(pH 6.2); gradual wavy boundary.

Bt1—14 to 22 inches; brown (7.5YR 5/4) loam, reddish brown (5YR 4/3) moist; weak medium subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; few distinct clay films on faces of peds and in root channels and pores; slightly acid (pH 6.2); gradual wavy boundary.

Bt2—22 to 35 inches; reddish brown (5YR 5/4) clay loam, dark reddish brown (5YR 3/4) moist; moderate medium subangular blocky structure; hard, friable, very sticky and moderately plastic; few distinct clay films on faces of peds; slightly acid (pH 6.2); gradual wavy boundary.

2Bt—35 to 39 inches; yellowish red (5YR 4/6) clay loam, yellowish red (5YR 4/6) moist; moderate medium angular blocky structure; very hard, friable, very sticky and moderately plastic; few prominent clay films on faces of peds and in pores; slightly acid (pH 6.1); abrupt wavy boundary.

2R—39 inches; hard sandstone.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

Rock fragment content: 0 to 5 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3

Clay content—15 to 27 percent

Reaction—slightly acid or neutral

BE or E horizon:

Hue—5YR or 7.5YR

Value—5 to 7 dry, 4 to 6 moist

Chroma—3 or 4

Texture, fine earth fraction—loam or silt loam

Clay content—15 to 27 percent

Reaction—slightly acid or neutral

Bt horizon:

Hue—5YR or 7.5YR

Value—4 to 7 dry, 3 or 4 moist

Chroma—3 to 6

Texture, fine earth fraction—loam, clay loam, or sandy clay loam

Clay content—18 to 35 percent

Reaction—slightly acid or neutral

Typical pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Lazear Series

Setting

Depth class: Shallow

Drainage class: Well drained

Landscape position: Mesas

Parent material: Residuum derived from interbedded shale and sandstone

Slope: 12 to 65 percent

Elevation: 7,600 to 7,800 feet

Mean annual precipitation: 16 to 18 inches

Mean annual temperature: 47 to 50 degrees F

Taxonomic Class

Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents

Typical Pedon

Lazear stony loam, 6 to 25 percent slopes, from the adjoining La Plata County Area, Colorado, Soil Survey; about 1,520 feet east and 1,220 feet north of the southwest corner of sec. 31, T. 34 N., R. 12 W., south of the Ute baseline.

A—0 to 5 inches; brown (7.5YR 5/4) stony loam, brown (7.5YR 4/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; 10 percent gravel and 15 percent stones and cobbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

AC—5 to 8 inches; light yellowish brown (10YR 6/4) loam, brown 10YR 5/3) moist; weak fine subangular blocky structure parting to moderate fine granular; soft, very friable, slightly sticky and slightly plastic; 5 percent gravel; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C—8 to 15 inches; very pale brown (10YR 8/4) loam, light yellowish brown (10YR 6/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; 10 percent gravel; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

R—15 inches; fractured, calcareous sandstone.

Range in Characteristics

Depth to bedrock: 10 to 20 inches

Depth to carbonates: 0 to 2 inches

Rock fragment content: 10 to 35 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4

Reaction—slightly to strongly alkaline

C horizon:

Hue—7.5YR to 2.5Y

Value—6 to 8 dry, 5 to 7 moist

Chroma—2 to 4

Texture, fine earth fraction—loam or clay loam

Clay content—15 to 35 percent

Reaction—moderately or strongly alkaline

The soils in this area have been correlated as Lazear to facilitate joining with La Plata County Area, Colorado, and the typical pedon is shared with this area. The soils mapped as Lazear are taxadjuncts to the series. The Lazear series is in an aridic moisture regime that borders ustic. The soils mapped as Lazear in this area are in an ustic moisture regime that borders aridic. This difference, however, does not significantly affect the use or management of the soils. In this survey area the Lazear soils are loamy, mixed, superactive, calcareous, mesic Lithic Aridic Ustorthents.

Lillings Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Alluvial fans, terraces, and flood plains

Parent material: Alluvium derived from shale

Slope: 1 to 6 percent

Elevation: 5,800 to 6,300 feet

Mean annual precipitation: 10 to 13 inches

Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Fine-silty, mixed, superactive, calcareous, mesic
Ustic Torrifluvents

Typical Pedon

Lillings silt loam, sodic, 1 to 3 percent slopes, about 400 feet west and 1,700 feet south of the northeast corner of sec. 36, T. 36 N., R. 16 W.

A—0 to 2 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; soft, very friable,

nonsticky and nonplastic; strongly alkaline (pH 8.5); clear wavy boundary.

C—2 to 9 inches; light gray (2.5Y 7/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; violently effervescent; very strongly alkaline (pH 9.4); gradual wavy boundary.

Ckyz1—9 to 18 inches; light brownish gray (2.5Y 6/4) silty clay loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; common fine filaments, threads, seams, and concretions of calcium carbonate, gypsum, and sodium chloride crystals; violently effervescent; moderately alkaline (pH 8.3); gradual wavy boundary.

Ckyz2—18 to 29 inches; light brownish gray (2.5Y 6/4) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; common fine filaments, threads, seams, and concretions of calcium carbonate, gypsum, and sodium chloride crystals; violently effervescent; moderately alkaline (pH 8.3); clear wavy boundary.

Ckyz3—29 to 37 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; massive; hard, firm, moderately sticky and slightly plastic; common fine concretions, filaments, threads, and seams of calcium carbonate, gypsum, and sodium chloride crystals; violently effervescent; moderately alkaline (pH 8.3); gradual wavy boundary.

Ckyz4—37 to 60 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; massive; hard, firm, moderately sticky and slightly plastic; few fine soft masses, filaments, threads, and concretions of calcium carbonate, gypsum, and sodium chloride crystals; violently effervescent; moderately alkaline (pH 8.3).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 0 to 20 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—10YR to 5Y

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 to 4

Texture, fine earth fraction—silt loam or silty clay loam

Clay content—18 to 35 percent

Reaction—slightly to strongly alkaline

C horizon:

Hue—10YR to 5Y

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 to 4

Texture, fine earth fraction—silt loam, silty clay loam, loam, or clay loam

Clay content—18 to 35 percent

Reaction—slightly to strongly alkaline

moderately plastic; cracks 1/2 inch wide extend through horizon; few fine roots throughout; moderately alkaline (pH 8.2); strongly effervescent; common, medium, soft masses and threads of carbonate and gypsum; clear smooth boundary.

Cr—29 inches; weathered shale.

Range in Characteristics*Depth to bedrock:* 20 to 40 inches*Depth to carbonates:* 0 to 20 inches**Littlenan Series****Setting***Depth class:* Moderately deep*Drainage class:* Well drained*Landscape position:* Structural benches and hills*Parent material:* Alluvium and residuum derived dominantly from shale*Slope:* 3 to 20 percent*Elevation:* 5,600 to 5,800 feet*Mean annual precipitation:* 10 to 12 inches*Mean annual temperature:* 49 to 53 degrees F**Taxonomic Class**

Fine, smectitic, mesic Ustertic Haplocambids

Typical Pedon

Littlenan gravelly loam in an area of Littlenan-Ruinpoint-Rizno association, 1 to 20 percent slopes, from the adjoining San Juan County, Utah, Central Part, Soil Survey; about 700 feet north and 2,200 feet east of the southwest corner of sec. 32, T. 37 S., R. 25 E.

A—0 to 3 inches; light brown (7.5YR 6/4) gravelly loam, brown (7.5YR 5/4) moist; weak fine granular structure; soft, friable, moderately sticky and moderately plastic; cracks 3/4 inch wide extend through horizon; common fine and very fine roots throughout; common fine interstitial pores; 15 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.2); slightly effervescent; clear smooth boundary.

Bw—3 to 14 inches; light brown (7.5YR 6/4) silty clay loam, brown (7.5YR 5/4) moist; strong coarse prismatic structure parting to strong medium subangular blocky; hard, very firm, moderately sticky and moderately plastic; common fine and very fine roots throughout; few fine discontinuous tubular pores; 10 percent gravel; strongly alkaline (pH 8.6); strongly effervescent; clear smooth boundary.

Bky—14 to 29 inches; light brown 7.5YR 6/4) silty clay, light brown (7.5YR 6/5) moist; massive; hard, firm, moderately sticky and

A horizon:

Hue—5YR or 7.5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—4 to 6

Clay content—10 to 25 percent

Rock fragment content—15 to 35 percent

Predominant rock fragment size—gravel

Reaction—moderately alkaline

B horizon:

Hue—5YR or 7.5YR

Value—5 to 7 dry, 4 to 6 moist

Chroma—4 to 6

Texture, fine earth fraction—silty clay loam, clay, or silty clay

Clay content—35 to 45 percent

Rock fragment content—0 to 10 percent

Predominant rock fragment size—gravel

Reaction—moderately or strongly alkaline

Typical pedon is shared with the San Juan County, Utah, Central Part, Soil Survey to facilitate joining.

Longburn Series**Setting***Depth class:* Shallow and very shallow*Drainage class:* Well drained*Landscape position:* Mesas and canyons*Parent material:* Colluvium, residuum, and reworked eolian material derived from sandstone*Slope:* 3 to 80 percent*Elevation:* 6,800 to 7,800 feet*Mean annual precipitation:* 16 to 19 inches*Mean annual temperature:* 47 to 50 degrees F**Taxonomic Class**

Loamy-skeletal, mixed, superactive, mesic Lithic Haplustalfs

Typical Pedon

Longburn cobbly fine sandy loam in an area of

Arabrab-Longburn complex, 3 to 15 percent slopes, Mesa Verde National Park; unsectionalized area: lat. 37 degrees 14 minutes 30 seconds and long. 108 degrees 23 minutes 28 seconds.

A1—0 to 1 inch; brown (7.5YR 5/4) cobbly fine sandy loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; soft, loose, nonsticky and nonplastic; 15 percent gravel, 10 percent cobbles, 5 percent stones, and 1 percent boulders; neutral (pH 7.2); abrupt smooth boundary.

A2—1 to 4 inches; brown (7.5YR 5/4) very cobbly fine sandy loam, dark brown (7.5YR 3/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and many medium roots throughout; 20 percent gravel, 15 percent cobbles, 5 percent stones, and 1 percent boulders; neutral (pH 7.2); clear wavy boundary.

Bt1—4 to 12 inches; brown (7.5YR 5/4) very cobbly clay loam, brown (7.5YR 4/4) moist; moderate medium angular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and common medium roots throughout; common very fine continuous tubular pores; many distinct continuous clay films on faces of pedis and in pores; 20 percent gravel, 20 percent cobbles, 5 percent stones, and 1 percent boulders; slightly alkaline (pH 7.4); clear wavy boundary.

Bt2—12 to 17 inches; brown (7.5YR 5/4) very cobbly clay loam, brown (7.5YR 4/4) moist; moderate medium angular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine roots throughout; common very fine discontinuous tubular pores; many distinct continuous clay films on faces of pedis and in pores; 25 percent gravel, 20 percent cobbles, 5 percent stones, and 1 percent boulders; slightly alkaline (pH 7.4); abrupt wavy boundary.

R—17 inches; hard Cliffhouse Sandstone.

Range in Characteristics

Rock fragment content: 35 to 60 percent

Predominant rock fragment size: gravel and cobbles

Depth to bedrock: 6 to 20 inches

A horizon:

Hue—7.5YR or 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4

Clay content—10 to 20 percent

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—4 or 5

Texture, fine earth fraction—clay loam or sandy clay loam

Clay content—20 to 35 percent

Reaction—slightly alkaline

Mack Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Mesas, terraces, and alluvial fans

Parent material: Alluvium and eolian material derived from sandstone

Slope: 0 to 6 percent

Elevation: 5,000 to 5,700 feet

Mean annual precipitation: 8 to 10 inches

Mean annual temperature: 52 to 56 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, mesic Typic Calciargids

Typical Pedon

Mack fine sandy loam, 0 to 6 percent slopes, about 1,200 feet north and 1,100 feet west of the southeast corner of sec. 1, T. 35 N., R. 19 W.

A1—0 to 1 inch; yellowish red (5YR 5/6) fine sandy loam, dark reddish brown (5YR 3/4) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; slightly alkaline (pH 7.6); clear smooth boundary.

A2—1 to 6 inches; yellowish red (5YR 4/6) fine sandy loam, reddish brown (5YR 4/4) moist; strong thick platy structure; soft, friable, nonsticky and nonplastic; slightly alkaline (pH 7.8); clear smooth boundary.

BA—6 to 13 inches; yellowish red (5YR 4/6) fine sandy loam, reddish brown (5YR 4/4) moist; weak coarse prismatic structure parting to weak coarse subangular blocky; soft, friable, nonsticky and nonplastic; slightly alkaline (pH 7.8); clear wavy boundary.

Btk1—13 to 18 inches; yellowish red (5YR 5/6) sandy clay loam, reddish brown (5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, slightly sticky and slightly plastic; common

prominent clay films on faces of peds; few fine soft masses of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.1); gradual wavy boundary.

Btk2—18 to 25 inches; light reddish brown (5YR 6/4) sandy clay loam, reddish brown (5YR 4/4) moist; moderate coarse subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; few distinct clay films on faces of peds; common medium soft masses and concretions of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Btk3—25 to 33 inches; light reddish brown (5YR 6/4) sandy clay loam, reddish brown (5YR 4/4) moist; moderate coarse subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; few distinct clay films on faces of peds; common medium soft masses and concretions of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk—33 to 60 inches; light gray (10YR 7/2) sandy clay loam, light brownish gray (10YR 6/2) moist; massive; hard, friable, slightly sticky and slightly plastic; disseminated calcium carbonate; violently effervescent; strongly alkaline (pH 8.6).

Range in Characteristics

Depth to bedrock: more than 40 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

Depth to carbonates: 0 to 20 inches

Depth to calcic horizon: 10 to 30 inches

A horizon:

Hue—5YR to 2.5Y

Value—4 to 7 dry, 3 to 5 moist

Chroma—2 to 6

Clay content—8 to 20 percent

Reaction—slightly or moderately alkaline

Btk horizon:

Hue—5YR to 10YR

Value—5 to 8 dry, 4 to 6 moist

Chroma—3 to 6

Texture, fine earth fraction—sandy clay loam or clay loam

Clay content—20 to 35 percent

Reaction—slightly or moderately alkaline

Bk horizon:

Hue—5YR to 10YR

Value—6 to 8 dry, 5 to 7 moist

Chroma—2 to 4

Texture—sandy clay loam, loam, or sandy loam

Reaction—moderately or strongly alkaline

Mikett Series

Setting

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landscape position: Alluvial fans and drainageways

Parent material: Alluvium derived from sandstone and shale

Slope: 0 to 3 percent

Elevation: 5,400 to 6,500 feet

Annual precipitation: 10 to 13 inches

Annual temperature: 50 to 52 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, calcareous, mesic Oxyaquic Torriorthents

Typical Pedon

Mikett clay loam, saline-sodic, 0 to 3 percent slopes, about 190 feet south and 810 feet west of the northeast corner of sec. 17, T. 35 N., R. 16 W.

Ap1—0 to 2 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; moderate coarse platy structure parting to moderate medium granular; soft, very friable, moderately sticky and slightly plastic; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Ap2—2 to 8 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak coarse subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

C1—8 to 15 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak coarse prismatic structure parting to weak coarse subangular blocky; hard, firm, moderately sticky and slightly plastic; violently effervescent; very strongly alkaline (pH 9.6); clear wavy boundary.

C2—15 to 22 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak coarse subangular blocky structure; very hard, firm, moderately sticky and slightly plastic; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

C3—22 to 35 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist;

massive; slightly hard, friable, moderately sticky and slightly plastic; violently effervescent; very strongly alkaline (pH 9.6); gradual wavy boundary.

- C4—35 to 60 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, moderately sticky and slightly plastic; violently effervescent; very strongly alkaline (pH 9.6).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 0 to 2 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

Depth to water table: 12 to 60 inches

A horizon:

Hue—10YR to 2.5Y

Value—4 to 7 dry, 3 to 6 moist

Chroma—2 to 4

Clay content—27 to 35 percent

Reaction—moderately or strongly alkaline

C horizon:

Hue—7.5YR to 2.5Y

Value—4 to 7 dry, 3 to 6 moist

Chroma—2 to 4

Texture, fine earth fraction—clay loam or loam

Clay content—18 to 35 percent

Reaction—strongly or very strongly alkaline

Mikim Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Alluvial fans, drainageways, and valleys

Parent material: Alluvium derived from sandstone and shale

Slope: 0 to 6 percent

Elevation: 6,000 to 6,400 feet

Mean annual precipitation: 11 to 13 inches

Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents

Typical Pedon

Mikim loam, 3 to 6 percent slopes, about 3,200 feet

south and 2,200 feet east of the northwest corner of sec. 31, T. 35 N., R. 16 W.

- A—0 to 3 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; strong medium platy structure; soft, very friable, slightly sticky and nonplastic; violently effervescent; slightly alkaline (pH 7.6); clear wavy boundary.

- AC—3 to 9 inches; brown (10YR 4/3) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; violently effervescent; slightly alkaline (pH 7.6); clear wavy boundary.

- C1—9 to 15 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; weak coarse prismatic structure parting to weak coarse subangular blocky; very hard, firm, slightly sticky and moderately plastic; violently effervescent; slightly alkaline (pH 7.6); clear smooth boundary.

- C2—15 to 19 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; weak coarse prismatic structure parting to weak coarse subangular blocky; hard, friable, slightly sticky and slightly plastic; violently effervescent; slightly alkaline (pH 7.6); clear smooth boundary.

- C3—19 to 32 inches; brown (10YR 5/3) stratified fine sandy loam to clay loam, brown (10YR 4/3) moist; weak coarse prismatic structure parting to weak coarse subangular blocky; hard, firm, slightly sticky and slightly plastic; violently effervescent; slightly alkaline (pH 7.8); gradual wavy boundary.

- C4—32 to 60 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; weak coarse prismatic structure parting to weak coarse subangular blocky; hard, firm, moderately sticky and moderately plastic; common fine irregular carbonate threads; violently effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 0 to 10 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—10YR to 2.5Y

Value—4 to 7 dry, 3 to 6 moist

Chroma—2 to 4

Texture, fine earth fraction—loam or clay loam

Clay content—10 to 35 percent

Reaction—slightly or moderately alkaline

C horizon:

Hue—7.5YR to 2.5Y

Value—5 to 7 dry, 3 to 6 moist

Chroma—2 to 4

Texture, fine earth fraction—stratified clay loam, loam, sandy clay loam, or fine sandy loam

Clay content—10 to 35 percent

Reaction—slightly to strongly alkaline

Morefield Series**Setting***Depth class:* Very deep*Drainage class:* Well drained*Landscape position:* Mesas*Parent material:* Eolian material derived from sandstone*Slope:* 1 to 6 percent*Elevation:* 6,800 to 7,800 feet*Mean annual precipitation:* 16 to 19 inches*Mean annual temperature:* 47 to 50 degrees F**Taxonomic Class**

Fine-silty, mixed, superactive, mesic Aridic Paleustalfs

Typical Pedon

Morefield loam, 1 to 3 percent slopes, Mesa Verde National Park, sectionalized area: lat. 37 degrees 9 minutes 31 seconds N., and long. 108 degrees 28 minutes 53 seconds W.

A—0 to 2 inches; brown (7.5YR 4/3) loam, dark brown (7.5YR 3/3), moist; single grain; loose nonsticky and nonplastic; common very fine roots throughout; noneffervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt1—2 to 8 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4), moist; moderate fine angular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine and medium roots throughout; common very fine discontinuous tubular pores; faint discontinuous clay bridging between sand grains; noneffervescent; neutral (pH 6.8); abrupt smooth boundary.

Bt2—8 to 12 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4), moist; moderate medium angular blocky structure; very hard, firm, slightly sticky and slightly plastic; common fine, medium, and coarse roots throughout; common very fine discontinuous tubular pores; faint discontinuous clay bridging between sand grains;

noneffervescent; neutral (pH 7.0); clear smooth boundary.

Bt3—12 to 24 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4), moist; moderate medium angular blocky structure; very hard, firm, slightly sticky and slightly plastic; common fine, medium, and coarse roots throughout; few very fine discontinuous tubular pores; faint discontinuous clay bridging between sand grains; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Btk1—24 to 58 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4), moist; moderate medium angular blocky structure; very hard, firm, slightly sticky and slightly plastic; common medium roots throughout; few very fine discontinuous tubular pores; many faint continuous clay films on faces of peds and in pores; common fine irregular carbonate threads; slightly effervescent; slightly alkaline; (pH 7.8) clear smooth boundary.

Btk2—58 to 60 inches; yellowish red (5YR 5/4) clay loam, reddish brown (5YR 4/4), moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, firm, slightly sticky and moderately plastic; few fine roots throughout; few very fine discontinuous tubular pores; many faint continuous clay films on faces of peds and in pores; few fine irregular carbonate threads; slightly effervescent; slightly alkaline (pH 7.7); abrupt smooth boundary.

Range in Characteristics*Depth to bedrock:* more than 60 inches*Depth to carbonates:* 10 to 36 inches*Rock fragment content:* 0 to 10 percent*Predominant rock fragment size:* gravel*A horizon:*

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 4

Clay content—10 to 20 percent

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 to 6 moist

Chroma—3 to 6

Texture, fine earth fraction—clay loam or loam

Clay content—18 to 35 percent

Reaction—neutral to moderately alkaline

Btk horizon:

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 to 6 moist
 Chroma—3 to 6
 Texture, fine earth fraction—clay loam or loam
 Clay content—18 to 35 percent
 Reaction—slightly or moderately alkaline

Nortez Series

Setting

Depth class: Moderately deep
Drainage class: Well drained
Landscape position: Hills and mesas
Parent material: Eolian material derived from sandstone
Slope: 0 to 15 percent
Elevation: 7,100 to 8,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual temperature: 40 to 47 degrees F

Taxonomic Class

Fine, smectitic, frigid Typic Argiustolls

Typical Pedon

Nortez loam in an area of Nortez-Granath complex, 0 to 6 percent slopes, about 800 feet west and 45 feet south of the northeast corner of sec. 29, T. 42 N., R. 18 W.

A1—0 to 2 inches; brown (7.5YR 5/2) loam, dark brown (7.5YR 3/2) moist; weak thick platy structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; neutral (pH 7.2); clear wavy boundary.

A2—2 to 6 inches; reddish brown (5YR 5/3) clay loam, dark reddish brown (5YR 3/3) moist; weak medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; neutral (pH 7.2); clear wavy boundary.

BA—6 to 10 inches; reddish brown (5YR 5/3) clay loam, dark reddish brown (5YR 3/3) moist; moderate fine subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; slightly alkaline (pH 7.4); clear wavy boundary.

Bt1—10 to 13 inches; reddish brown (5YR 5/4) clay loam, dark reddish brown (5YR 3/4) moist; strong fine subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; common distinct clay films on faces of peds; slightly alkaline (pH 7.4); clear wavy boundary.

Bt2—13 to 31 inches; yellowish red (5YR 5/6) clay, yellowish red (5YR 4/6) moist; strong medium prismatic structure parting to strong medium

angular blocky; extremely hard, very firm, very sticky and very plastic; many prominent clay films on faces of peds; slightly alkaline (pH 7.4); abrupt smooth boundary.
 2R—31 inches; hard Dakota Sandstone.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 16 inches
Depth to bedrock: 20 to 40 inches
Rock fragment content: 0 to 35 percent
Predominant rock fragment size: gravel

A horizon:

Hue—5YR to 10YR
 Value—3 to 5 dry, 2 or 3 moist
 Chroma—2 or 3
 Clay content—15 to 27 percent
 Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR to 10YR
 Value—4 to 7 dry, 3 to 6 moist
 Chroma—2 to 6
 Texture, fine earth fraction—clay or clay loam
 Clay content—35 to 60 percent
 Reaction—neutral to moderately alkaline

Northrim Series

Setting

Depth class: Very deep
Drainage class: Well drained
Landscape position: Canyons, hills, and ridges
Parent material: Colluvium derived from sandstone and shale
Slope: 15 to 40 percent
Elevation: 7,800 to 8,300 feet
Mean annual precipitation: 17 to 22 inches
Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, frigid Typic Haplustalfs

Typical Pedon

Northrim cobbly loam, 15 to 40 slopes, about 100 feet east and 1,100 feet north of the southwest corner of sec. 22, T. 35 N., R. 15 W.

Oi—0 to 2 inches; slightly decomposed litter consisting of oak leaves and twigs.

A1—2 to 4 inches; brown (10YR 4/3) cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable,

nonsticky and nonplastic; common very fine, fine, and medium roots throughout; noneffervescent; 5 percent sandstone gravel, 20 percent cobbles, and 1 percent stones; neutral (pH 6.8); abrupt smooth boundary.

A2—4 to 9 inches; brown (10YR 5/3) cobbly loam, dark grayish brown (10YR 4/2) moist; moderate very fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots throughout; few very fine discontinuous tubular pores; noneffervescent; 5 percent sandstone gravel, 20 percent cobbles, and 1 percent stones; neutral (pH 6.8); abrupt smooth boundary.

Bt1—9 to 22 inches; pale brown (10YR 6/3) cobbly loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; few very fine and common fine roots throughout; few very fine discontinuous tubular pores; many faint continuous clay films throughout; noneffervescent; 10 percent sandstone gravel, 15 percent cobbles, and 1 percent stones; neutral (pH 6.8); clear smooth boundary.

Bt2—22 to 40 inches; pale brown (10YR 6/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; few very fine and medium roots throughout; few very fine discontinuous tubular pores; common faint patchy clay films throughout; noneffervescent; 10 percent gravel and 5 percent cobbles; neutral (pH 6.6); gradual smooth boundary.

Bt3—40 to 48 inches; light yellowish brown (2.5Y 6/4) clay loam, light olive brown (2.5Y 5/4) moist; weak fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots throughout; few very fine discontinuous tubular pores; few faint patchy clay films throughout; noneffervescent; 10 percent gravel and 2 percent cobbles; neutral (pH 6.6); gradual smooth boundary.

Bt4—48 to 60 inches; light yellowish brown (2.5Y 6/4) clay loam, olive brown (2.5Y 4/4) moist; weak fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots throughout; few faint patchy clay films throughout; noneffervescent; 10 percent gravel and 2 percent cobbles; neutral (pH 6.6).

Range in Characteristics

Depth to bedrock: more than 60 inches

A horizon:

Hue—7.5YR or 10YR

Value—3 to 5 dry, 2 to 4 moist

Chroma—2 to 4

Clay content—15 to 27 percent

Rock fragment content—5 to 50 percent

Predominant rock fragment size—gravel and cobbles

Reaction—neutral

Bt horizon:

Hue—7.5YR to 2.5Y

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 to 6

Texture, fine earth fraction—clay loam or loam

Clay content—20 to 35 percent

Rock fragment content—0 to 35 percent

Predominant rock fragment size—gravel and cobbles

Reaction—neutral or slightly alkaline

Ormiston Series

Setting

Depth class: Deep

Drainage class: Well drained

Landscape position: Hills and mesas

Parent material: Reworked eolian material, slope alluvium, and residuum derived from sandstone

Slope: 0 to 30 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual temperature: 41 to 47 degrees F

Taxonomic Class

Clayey-skeletal, smectitic, frigid Calcic Haplustalfs

Typical Pedon

Ormiston extremely stony loam in an area of Ormiston-Granath complex, 1 to 12 percent slopes, about 2,400 feet east and 400 feet north of the southwest corner of sec. 36, T. 41 N., R. 18 W.

A1—0 to 3 inches; brown (7.5YR 4/4) extremely stony loam with 10 percent stones on the surface, dark brown (7.5YR 3/2) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; 20 percent gravel, 20 percent cobbles, and 25 percent stones; neutral (pH 7.2); clear wavy boundary.

A2—3 to 7 inches; brown (7.5YR 5/4) very stony clay loam, dark brown (7.5YR 3/4) moist; moderate

medium subangular blocky structure; hard, friable, slightly sticky and moderately plastic; 10 percent gravel, 15 percent cobbles, and 20 percent stones; neutral (pH 7.2); clear wavy boundary.

Bt1—7 to 24 inches; reddish brown (5YR 5/4) very stony clay loam, reddish brown (5YR 4/4) moist; strong medium prismatic structure parting to moderate medium angular blocky; very hard, very firm, moderately sticky and moderately plastic; 10 percent gravel, 20 percent cobbles, and 20 percent stones; slightly alkaline (pH 7.4); clear irregular boundary.

Bt2—24 to 32 inches; reddish brown (5YR 5/4) stony clay loam, yellowish red (5YR 5/6) moist; strong medium angular blocky structure; very hard, very firm, moderately sticky and moderately plastic; 5 percent gravel, 15 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); abrupt wavy boundary.

Bk—32 to 44 inches; pinkish white (5YR 8/2) stony clay loam, pink (5YR 7/3) moist; massive; hard, firm, slightly sticky and slightly plastic; 5 percent gravel, 5 percent cobbles, and 5 percent stones; disseminated calcium carbonate; violently effervescent; moderately alkaline (pH 8.1); clear smooth boundary.

2R—44 inches; hard Dakota Sandstone.

Range in Characteristics

Depth to bedrock: 40 to 60 inches

Depth to calcic horizon: 30 to 40 inches

Rock fragment content: 35 to 80 percent

Predominant rock fragment size: gravel, cobbles, and stones

A horizon:

Hue—5YR to 10YR

Value—3 to 5 dry, 2 to 4 moist

Chroma—2 to 4

Clay content—12 to 25 percent

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—2.5YR to 7.5YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—4 to 6

Texture, fine earth fraction—clay loam or clay

Clay content—35 to 60 percent

Reaction—neutral to slightly alkaline

Bk horizon:

Hue—5YR or 7.5YR

Value—7 or 8 dry, 6 or 7 moist

Chroma—2 to 4

Texture, fine earth fraction—clay loam

Calcium carbonate equivalent—15 to 40 percent

Reaction—slightly or moderately alkaline

Pagoda Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Hills and mesas

Parent material: Slope alluvium derived from shale

Slope: 0 to 15 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual temperature: 40 to 47 degrees F

Taxonomic Class

Fine, smectitic, frigid Vertic Argiustolls

Typical Pedon

Pagoda loam in an area of Herm-Pagoda complex, 0 to 15 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; about 2,600 feet east and 1,700 feet south of the northwest corner of sec. 15, T. 41 N., R. 16 W.

Oi—0 to 1 inch; slightly decomposed leaf litter and roots.

A—1 to 5 inches; dark grayish brown (10YR 4/2) loam, black (10YR 2/1) moist; moderate medium granular structure; slightly hard, very friable, moderately sticky and moderately plastic; neutral (pH 7.2); clear smooth boundary.

Bt1—5 to 16 inches; brown (10YR 4/3) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to strong fine subangular blocky; hard, friable, moderately sticky and moderately plastic; few distinct clay films on faces of peds; neutral (pH 7.2); clear smooth boundary.

Bt2—16 to 21 inches; brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common distinct clay films on faces of peds; neutral (pH 7.2); clear smooth boundary.

Bk1—21 to 32 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; massive; very hard, very firm, moderately sticky and moderately plastic; strongly effervescent; calcium carbonate disseminated; moderately alkaline (pH 8.2); gradual smooth boundary.

Bk2—32 to 60 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist;

massive; very hard, very firm, moderately sticky and moderately plastic; violently effervescent; calcium carbonate disseminated and in soft masses; moderately alkaline (pH 8.2).

Range in Characteristics

Thickness of the mollic epipedon: 16 to 24 inches

Depth to bedrock: more than 60 inches

Depth to carbonates: 20 to more than 40 inches

Rock fragment content: 0 to 5 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3

Reaction—neutral

Bt horizon:

Hue—10YR to 5Y

Value—5 to 7 dry, 3 to 6 moist

Chroma—2 to 4

Texture, fine earth fraction—clay or clay loam

Clay content—35 to 50 percent

Reaction—neutral or slightly alkaline

Bk horizon:

Hue—10YR to 5Y

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 to 4

Texture, fine earth fraction—clay loam or clay

Reaction—moderately alkaline

Typical pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Payter Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Alluvial fans

Parent material: Alluvium derived from sandstone

Slope: 3 to 15 percent

Elevation: 6,500 to 6,800 feet

Annual precipitation: 13 to 15 inches

Annual temperature: 47 to 50 degrees F

Taxonomic Class

Coarse-loamy, mixed, superactive, mesic Cumulic Haplustolls

Typical Pedon

Payter sandy loam, 3 to 15 percent slopes, from the

adjoining Animas-Dolores Area, Colorado, Soil Survey; about 3,100 feet east and 3,800 feet south of the northwest corner of section 34, T.39 N., R.16 W.

A1—0 to 3 inches; brown (10YR 5/3) sandy loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many fine and few medium roots; 5 percent gravel; strongly effervescent; carbonates are disseminated; slightly alkaline (pH 7.4); clear smooth boundary.

A2—3 to 6 inches; yellowish brown (10YR 5/4) sandy loam, very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure parting to weak fine granular; slightly hard, very friable, nonsticky and nonplastic; common fine and few medium roots; strongly effervescent; carbonates are disseminated; slightly alkaline (pH 7.4); clear smooth boundary.

A3—6 to 11 inches; brown (10YR 5/3) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; few fine and few medium roots; 5 percent gravel; strongly effervescent; carbonates are disseminated; slightly alkaline (pH 7.4); gradual wavy boundary.

C1—11 to 17 inches; yellowish brown (10YR 5/4) sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; violently effervescent; carbonates are disseminated; slightly alkaline (pH 7.6); gradual wavy boundary.

C2—17 to 39 inches; grayish brown (10YR 5/2) sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; violently effervescent; carbonates are disseminated; moderately alkaline (pH 8.0); gradual wavy boundary.

C3—39 to 60 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; violently effervescent; carbonates are disseminated; moderately alkaline (pH 8.2).

Range in Characteristics

Thickness of the mollic epipedon: 20 to 60 inches

Depth to bedrock: more than 60 inches

A horizon:

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist
 Chroma—2 to 4 dry, 2 or 3 moist
 Rock fragment content—0 to 10 percent
 Predominant rock fragment size—gravel
 Reaction—neutral or slightly alkaline

C horizon:

Hue—7.5YR or 10YR
 Value—4 to 6 dry, 2 to 4 moist
 Chroma—2 to 4 dry or moist
 Texture, fine earth fraction—sandy loam or fine sandy loam
 Rock fragment content—0 to 15 percent
 Predominant rock fragment size—gravel
 Reaction—slightly or moderately alkaline

Typical pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Pinacol Series

Setting

Depth class: Very deep
Drainage class: Well drained
Landscape position: Mesas and hills
Parent material: Slope alluvium over outwash from mixed sources
Slope: 1 to 40 percent
Elevation: 7,800 to 8,200 feet
Mean annual precipitation: 18 to 20 inches
Mean annual temperature: 40 to 45 degrees F

Taxonomic Class

Clayey-skeletal, smectitic, frigid Typic Haplustalfs

Typical Pedon

Pinacol loam, 1 to 12 percent slopes, from the adjoining La Plata County Area, Colorado, Soil Survey; about 400 feet east and 800 feet north of the southwest corner of sec. 13, T. 35 N., R. 11 W.

A—0 to 7 inches; brown (7.5YR 5/2) loam, brown (7.5YR 4/2) moist; weak fine and moderate medium granular structure; soft, very friable, nonsticky and nonplastic; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

BA—7 to 11 inches; brown (7.5YR 5/4) clay loam, brown (7.5YR 4/4) moist; moderate fine subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; faint patchy clay films

on faces of peds; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

Bt1—11 to 21 inches; reddish brown (5YR 5/4) gravelly clay, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; 20 percent gravel and 10 percent cobbles; faint continuous clay films on faces of peds; neutral (pH 7.0); gradual smooth boundary.

Bt2—21 to 31 inches; reddish brown (5YR 5/4) very cobbly clay, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; faint continuous clay films on faces of peds; 15 percent gravel and 40 percent cobbles; neutral (pH 6.8) gradual smooth boundary.

BC—31 to 38 inches; reddish brown (5YR 5/4) extremely cobbly clay, reddish brown (5YR 4/4) moist; moderate fine subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; faint patchy clay films in root channels and on faces of peds; 15 percent gravel and 45 percent cobbles; neutral (pH 6.8); gradual smooth boundary.

C—38 to 60 inches; mixed strong brown (7.5YR 5/6) and pinkish gray (7.5YR 6/2) extremely cobbly sandy clay loam, brown (7.5YR 5/4) and dark brown (7.5YR 4/4) moist; massive; hard, friable, slightly sticky and nonplastic; 20 percent gravel and 50 percent cobbles; slightly alkaline (pH 7.6).

Range in Characteristics

Depth to bedrock: more than 60 inches

A horizon:

Hue—7.5YR or 10YR
 Value—3 to 5 dry, 2 to 4 moist
 Chroma—2 to 4
 Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR or 7.5YR
 Value—5 to 6 dry, 4 to 6 moist
 Chroma—3 or 4
 Texture, fine earth fraction—clay, sandy clay, or clay loam
 Rock fragment content—40 to 80 percent
 Predominant rock fragment size—gravel and cobbles
 Reaction—slightly acid to slightly alkaline

Typical pedon is shared with the La Plata County Area, Colorado, Soil Survey to facilitate joining.

Pogo Series

Setting

Depth class: Very deep

Drainage class: Poorly drained

Landscape position: Flood plains and drainageways

Parent material: Alluvium derived from sandstone and shale

Slope: 0 to 2 percent

Elevation: 5,400 to 7,400 feet

Mean annual precipitation: 10 to 16 inches

Mean annual temperature: 46 to 52 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, calcareous, mesic
Typic Fluvaquents

Typical Pedon

Pogo loam, 0 to 2 percent slopes, about 300 feet east and 200 feet north of the southwest corner of sec. 25, T. 16 N., R. 37 W.

Ay—0 to 2 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; hard, friable, nonsticky and nonplastic; few fine soft masses of gypsum; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Ckyg—2 to 10 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine distinct yellowish red (5YR 4/6), moist, iron masses; massive; very hard, very firm, moderately sticky and moderately plastic; common fine soft masses and filaments of gypsum; few fine seams and filaments of calcium carbonate; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Cyg1—10 to 20 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common medium distinct yellowish red (5YR 4/6), moist, iron masses; massive; very hard, very firm, moderately sticky and moderately plastic; common fine soft masses and filaments of gypsum; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Cyg2—20 to 28 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; many large distinct yellowish red (5YR 4/6), moist, iron masses; massive; hard, friable, slightly sticky and slightly plastic; few fine

soft masses of gypsum; violently effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.

Cg1—28 to 36 inches; pale brown (10YR 6/3) very fine sandy loam, dark grayish brown (10YR 4/2) moist; few fine faint yellowish red (5YR 4/6), moist, iron masses; massive; hard, friable, slightly sticky and nonplastic; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Cg2—36 to 60 inches; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; few fine faint yellowish red (5YR 4/6), moist, iron masses; massive; very hard, friable, slightly sticky and nonplastic; violently effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: more than 60 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

Depth to carbonates: 0 to more than 60 inches

Control section: 27 to 35 percent clay

Depth to water table: 0 to 20 inches

A horizon:

Hue—10YR

Value—4 to 7 dry, 3 to 5 moist

Chroma—1 to 3

Clay content—15 to 27 percent

Reaction—moderately or strongly alkaline

C horizon:

Hue—10YR

Value—5 to 7 dry, 3 to 5 moist

Chroma—1 to 3

Texture, fine earth fraction—stratified with sand to silty clay to clay

Clay content—5 to 45 percent

Reaction—moderately or strongly alkaline

Pramiss Series

Setting

Depth class: Moderately deep

Drainage class: Well drained

Landscape position: Hills and ridges

Parent material: Reworked eolian material and slope alluvium over residuum derived from sandstone and shale

Slope: 2 to 25 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 15 to 20 inches
Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Fine, smectitic, frigid Typic Argiustolls

Typical Pedon

Pramiss very cobbly loam, 6 to 25 percent slopes, about 1,850 feet east and 200 feet south of the northwest corner of sec. 7, T. 41 N., R. 18 W.

A—0 to 3 inches; brown (7.5YR 4/4) very cobbly loam, dark brown (7.5YR 3/2) moist; strong thick platy vesicular crust overlying weak fine granular structure; soft, very friable, nonsticky and nonplastic; 25 percent gravel, 15 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.5); clear wavy boundary.

AB—3 to 8 inches; brown (7.5YR 4/4) clay loam, dark reddish brown (5YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; 2 percent gravel; slightly alkaline (pH 7.4); gradual wavy boundary.

Bt—8 to 16 inches; reddish brown (5YR 5/4) clay, reddish brown (5YR 4/4) moist; strong coarse prismatic structure parting to strong coarse angular blocky; very hard, very firm, very sticky and very plastic; 2 percent gravel; slightly alkaline (pH 7.4); gradual wavy boundary.

Bk1—16 to 22 inches; light reddish brown (5YR 6/4) clay, reddish brown (5YR 5/3) moist; moderate coarse prismatic structure parting to moderate medium angular blocky; very hard, very firm, moderately sticky and very plastic; 2 percent gravel; disseminated calcium carbonate; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bk2—22 to 31 inches; pink (5YR 7/4) clay, pinkish gray (5YR 6/2) moist; massive; hard, friable, moderately sticky and moderately plastic; 2 percent gravel; disseminated calcium carbonate; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

2Cr—31 inches; soft calcareous sandstone and shale.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 16 inches
Depth to bedrock: 20 to 40 inches
Depth to carbonates: 15 to 30 inches

A horizon:

Hue—5YR to 10YR

Value—3 to 5 dry, 2 or 3 moist
 Chroma—2 to 4
 Clay content—10 to 27 percent
 Rock fragment content—0 to 60 percent
 Predominant rock fragment size—gravel, cobbles, and stones
 Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR or 7.5YR
 Value—4 to 6 dry, 4 or 5 moist
 Chroma—3 to 6
 Texture, fine earth fraction—clay or clay loam
 Clay content—35 to 60 percent
 Rock fragment content—0 to 35 percent
 Predominant rock fragment size—gravel and cobbles
 Reaction—neutral to moderately alkaline

Bk horizon:

Hue—2.5YR to 7.5YR
 Rock fragment content—0 to 35 percent
 Predominant rock fragment size—gravel
 Reaction—slightly or moderately alkaline

Prater Series

Setting

Depth class: Very deep
Drainage class: Well drained
Landscape position: Canyons, hills, and alluvial fans
Parent material: Colluvium and alluvium derived from shale and sandstone
Slope: 10 to 60 percent
Elevation: 6,800 to 7,800 feet
Mean annual precipitation: 16 to 19 inches
Mean annual temperature: 47 to 50 degrees F

Taxonomic Class

Fine, mixed, superactive, mesic Aridic Haplustalfs

Typical Pedon

Prater loam in an area of Prater-Dolcan complex, 25 to 60 percent slopes, about 1,500 feet west and 300 feet south of the northeast corner of sec. 32, T. 35 N., R. 14 W.

A1—0 to 1 inch; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; massive; loose nonsticky and nonplastic; 5 percent gravel, 5 percent cobbles, and 1 percent stones; neutral (7.0); abrupt smooth boundary.
 A2—1 to 3 inches; brown (10YR 5/3) clay loam, dark

brown (10YR 3/3) moist; moderate coarse platy structure parting to moderate fine granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots throughout; 5 percent gravel, 5 percent cobbles, and 1 percent stones; neutral (7.0); abrupt smooth boundary.

Bt—3 to 9 inches; yellowish brown (10YR 5/4) clay loam, brown (10YR 4/3) moist; moderate fine angular blocky structure; hard, friable, moderately sticky and moderately plastic; common fine roots between peds and common medium roots throughout; few very fine discontinuous tubular pores; common distinct discontinuous clay films on faces of peds and in pores; 5 percent gravel, 5 percent cobbles, and 1 percent stones; neutral (7.0); gradual smooth boundary.

Btk1—9 to 17 inches; yellowish brown (10YR 5/4) clay loam, brown (10YR 4/3) moist; few medium faint yellowish brown (10YR 5/6) masses of iron accumulation; moderate fine angular blocky structure; very hard, friable, moderately sticky and moderately plastic; common fine and coarse roots throughout; few very fine and fine discontinuous tubular pores; many distinct continuous clay films on faces of peds and in pores; few fine rounded soft masses of carbonate throughout; slightly effervescent; 5 percent gravel, 5 percent cobbles, and 1 percent stones; slightly alkaline (7.6); gradual smooth boundary.

Btk2—17 to 21 inches; light yellowish brown (10YR 6/4) clay loam, brown (10YR 4/3), moist; common medium faint yellowish brown (10YR 5/6) iron masses; moderate fine angular blocky structure; very hard, friable, moderately sticky and moderately plastic; few very fine and common fine roots throughout; few very fine and fine discontinuous tubular pores; many distinct continuous clay films on faces of peds and in pores; common medium rounded soft masses of carbonate throughout; strongly effervescent; 5 percent gravel, 5 percent cobbles, and 1 percent stones; moderately alkaline (pH 8.2); gradual smooth boundary.

Btk3—21 to 37 inches; very pale brown (10YR 7/3) clay loam, brown (10YR 5/3) moist; common fine faint yellowish brown (10YR 5/6) iron masses; moderate fine angular blocky structure; very hard, friable, moderately sticky and moderately plastic; few very fine and common fine roots throughout; few very fine discontinuous tubular pores; many distinct continuous clay films on faces of peds and in pores; common coarse

irregular soft masses of carbonate throughout; strongly effervescent; 5 percent gravel, 4 percent cobbles, and 2 percent stones; moderately alkaline (pH 8.2); gradual smooth boundary.

Bk—37 to 60 inches; 50 percent light gray (10YR 7/2), 25 percent light yellowish brown (10YR 6/4), and 25 percent brown (10YR 5/3) clay, grayish brown (10YR 5/2), yellowish brown (10YR 5/4), and grayish brown (10YR 5/2) moist; few fine faint yellowish brown (10YR 5/6) iron masses; weak coarse subangular blocky structure; extremely hard, friable, slightly sticky and moderately plastic; common very fine, few fine, and common medium roots throughout; common coarse rounded soft masses of carbonate throughout; slightly effervescent; 5 percent gravel, 5 percent cobbles, and 4 percent stones; moderately alkaline (pH 8.2). Pressure faces present. Horizon has variegated colors. Pockets of eolian material at a depth of 42 inches.

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 6 to 40 inches

A horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 4

Clay content—10 to 35 percent

Rock fragments—10 to 20 percent

Reaction—neutral

B horizon:

Hue—10YR or 2.5Y

Value—4 to 7 dry, 3 to 6 moist

Chroma—2 to 4

Texture—clay loam or clay

Clay content—27 to 45 percent

Rock fragments—5 to 20 percent

Reaction—neutral to moderately alkaline

Pulpit Series

Setting

Depth class: Moderately deep

Drainage class: Well drained

Landscape position: Hills and mesas

Parent material: Eolian material derived from sandstone

Slope: 2 to 12 percent

Elevation: 6,200 to 7,800 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine-silty, mixed, superactive, mesic Aridic
Haplustalfs

Typical Pedon

Pulpit loam in an area of Sharps-Pulpit complex, 2 to 6 percent slopes, about 1,000 feet west and 700 feet south of the northeast corner of sec. 24, T. 41 N., R. 20 W.

- Ap—0 to 7 inches; reddish brown (5YR 5/4) loam, dark reddish brown (5YR 3/4) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; neutral (pH 7.2); clear smooth boundary.
- BA—7 to 10 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/4) moist; weak medium subangular blocky structure parting to moderate fine granular; slightly hard, very friable, slightly sticky and slightly plastic; few faint clay films on faces of peds and in pores; slightly alkaline (pH 7.4); clear smooth boundary.
- Bt—10 to 20 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few distinct clay films on faces of peds and in pores; slightly alkaline (pH 7.6); clear wavy boundary.
- Btk—20 to 25 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/4) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few faint clay films on faces of peds and in pores; common fine soft masses, seams, filaments and threads of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.
- Bk1—25 to 30 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; common fine soft masses, seams, filaments and threads of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- Bk2—30 to 36 inches; pink (7.5YR 8/4) fine sandy loam, pink (7.5YR 7/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; common fine soft masses, seams, filaments and threads of calcium carbonate; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.
- 2R—36 inches; hard Dakota Sandstone.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Depth to carbonates: 6 to 20 inches
Rock fragment content: 0 to 10 percent
Predominant rock fragment size: gravel

A horizon:

Hue—2.5YR to 7.5YR
 Value—5 to 7 dry, 3 to 6 moist
 Chroma—2 to 4
 Clay content—10 to 27 percent
 Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR
 Value—5 to 7 dry, 3 to 6 moist
 Chroma—3 to 6
 Clay content—18 to 35 percent
 Texture, fine earth fraction—loam or clay loam
 Reaction—neutral to moderately alkaline

Bk horizon:

Hue—5YR or 7.5YR
 Value—5 to 8 dry, 4 to 7 moist
 Chroma—2 to 4
 Texture, fine earth fraction—loam, clay loam, or fine sandy loam
 Clay content—10 to 35 percent
 Reaction—slightly or moderately alkaline

Purcella Series**Setting**

Depth class: Very deep
Drainage class: Well drained
Landscape position: Terraces
Parent material: Alluvium derived from mixed sources
Slope: 0 to 3 percent
Elevation: 6,200 to 7,400 feet
Mean annual precipitation: 13 to 16 inches
Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Loamy-skeletal, mixed, superactive, mesic Aridic
Argiustolls

Typical Pedon

Purcella loam, 0 to 3 percent slopes, about 1,700 feet south and 50 feet west of the northeast corner of sec. 1, T. 35 N., R. 14 W.

A—0 to 4 inches; dark brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; moderate medium and thick platy structure; slightly hard,

friable, moderately sticky and slightly plastic; neutral (pH 7.2); clear wavy boundary.

Bt1—4 to 11 inches; dark brown (7.5YR 4/4) gravelly loam, dark brown (7.5YR 3/2) moist; strong medium and fine subangular blocky structure; hard, friable, moderately sticky and slightly plastic; common distinct clay films on faces of peds; 10 percent gravel and 5 percent cobbles; neutral (pH 7.2); gradual irregular boundary.

Bt2—11 to 30 inches; dark brown (7.5YR 4/4) extremely cobbly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium and fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common distinct clay films on faces of peds; 25 percent gravel, 35 percent cobbles, and 5 percent stones; neutral (pH 7.2); gradual irregular boundary.

Bt3—30 to 41 inches; brown (10YR 5/3) extremely cobbly sandy clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, moderately sticky and slightly plastic; few distinct clay films on faces of peds; 25 percent gravel, 35 percent cobbles, and 5 percent stones; neutral (pH 7.3); gradual irregular boundary.

Bk—41 to 60 inches; brown (10YR 5/3) extremely cobbly sandy loam, dark brown (10YR 4/3) moist; single grain; loose nonsticky and nonplastic; 25 percent gravel, 40 percent cobbles, and 5 percent stones; common fine soft masses, filaments, and threads of calcium carbonate; strongly effervescent; slightly alkaline (pH 7.5).

Range in Characteristics

Thickness of the mollic epipedon: 10 to 16 inches

Control section rock fragment content: 35 to 70 percent

Depth to bedrock: more than 60 inches

Depth to carbonates: 25 to more than 60 inches

Depth to calcic horizon: 40 to 60 inches

A horizon:

Hue—7.5YR or 10YR

Value—3 or 4 dry, 3 or 4 moist

Chroma—2 or 3

Clay content—10 to 27 percent

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR or 7.5YR

Value—3 to 6 dry, 3 to 6 moist

Chroma—2 to 4

Texture, fine earth fraction—clay loam, sandy clay loam, or loam

Clay content—18 to 35 percent

Rock fragment content—35 to 70 percent

Predominant rock fragment size—gravel and cobbles

Reaction—neutral or slightly alkaline

Bk horizon:

Hue—7.5YR or 10YR

Value—5 to 8 dry, 4 to 7 moist

Chroma—1 to 4

Texture, fine earth fraction—sandy loam or loam

Clay content—8 to 25 percent

Rock fragment content—35 to 70 percent

Predominant rock fragment size—gravel and cobbles

Reaction—slightly or moderately alkaline

Ramper Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Alluvial fans, drainageways, and flood plains

Parent material: Alluvium derived from sandstone and shale

Slope: 0 to 3 percent

Elevation: 6,000 to 7,400 feet

Mean annual precipitation: 12 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, calcareous, mesic
Aridic Ustifluvents

Typical Pedon

Ramper loam, 0 to 3 percent slopes, about 2,600 feet south and 900 feet west of the northeast corner of sec. 30, T. 40 N., R. 18 W.

A—0 to 3 inches; dark yellowish brown (10YR 4/4) loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure parting to moderate medium granular; very hard, firm, moderately sticky and moderately plastic; strongly effervescent; moderately alkaline (pH 8.3); clear smooth boundary.

C—3 to 18 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 3/4) moist; moderate medium

platy structure; slightly hard, very friable, slightly sticky and slightly plastic; strongly effervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Ck1—18 to 30 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 3/4) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; few fine soft filaments of calcium carbonate; strongly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.

Ck2—30 to 38 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 3/4) moist; weak medium platy structure; slightly hard, firm, moderately sticky and moderately plastic; few fine soft filaments of calcium carbonate; slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.

Ab—38 to 60 inches; brown (7.5YR 4/4) loam, dark brown (7.5YR 3/2) moist; massive; hard, firm, slightly sticky and slightly plastic; slightly effervescent; slightly alkaline (pH 7.4).

Range in Characteristics

Depth to bedrock: more than 60 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4

Texture, fine earth fraction—loam or clay loam

Clay content—15 to 35 percent

Reaction—slightly or moderately alkaline

C horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture, fine earth fraction—stratified sandy loam to clay loam

Clay content—18 to 35 percent

Reaction—slightly or moderately alkaline

Ravola Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Alluvial fans and flood plains

Parent material: Alluvium derived from sandstone and shale

Slope: 0 to 3 percent

Elevation: 5,000 to 5,700 feet

Mean annual precipitation: 8 to 10 inches

Mean annual temperature: 52 to 56 degrees F

Taxonomic Class

Fine-silty, mixed, active, calcareous, mesic Typic Torrifluvents

Typical Pedon

Ravola clay loam, 0 to 3 percent slopes, about 375 feet east and 800 feet north of the southwest corner of sec. 36, T. 37 N., R. 19 W.

An1—0 to 5 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate coarse granular structure; slightly hard, firm, slightly sticky and moderately plastic; slightly effervescent; very strongly alkaline (pH 9.2); gradual smooth boundary.

An2—5 to 9 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; massive; slightly hard, firm, slightly sticky and moderately plastic; slightly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

Cn—9 to 20 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; massive; slightly hard, firm, slightly sticky and moderately plastic; common fine filaments and threads of salt; slightly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

C1—20 to 24 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; slightly effervescent; moderately line (pH 8.2); abrupt wavy boundary.

C2—24 to 28 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, firm, slightly sticky and moderately plastic; common fine filaments and threads of salt; slightly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.

C3—28 to 50 inches; light yellowish brown (10YR 6/4) loamy sand, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; slightly effervescent; slightly alkaline (pH 7.6); abrupt wavy boundary.

C4—50 to 60 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; massive, slightly hard, very friable, nonsticky and slightly plastic; strongly effervescent; slightly alkaline (pH 7.6).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 0 to 3 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

Exchangeable sodium: 15 to 60 percent

A horizon:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 to 6

Clay content—27 to 35 percent

Reaction—strongly or very strongly alkaline

C horizon:

Hue—10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4

Texture, fine earth fraction—loam, clay loam, or silty clay loam

Clay content—18 to 35 percent

Reaction—slightly to strongly alkaline

The soils mapped as Ravola are taxadjuncts to the series. The particle-size control section for Ravola series is fine-silty. The local pedon has a fine-loamy particle-size control section. This difference, however, does not significantly affect the use or management of the soils. In this survey area the Ravola soils are fine-loamy, mixed, active, calcareous, mesic Typic Torrifluvents.

Recapture Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Mesas and alluvial fans

Parent material: Eolian material and alluvium derived from sandstone and shale

Slope: 0 to 6 percent

Elevation: 5,000 to 5,700 feet

Mean annual precipitation: 8 to 10 inches

Mean annual temperature: 52 to 56 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, mesic Typic Natrargids

Typical Pedon

Recapture fine sandy loam, 0 to 6 percent slopes, about 2,400 feet west and 1,700 feet south of the northeast corner of sec. 28, T. 36 N., R. 19 W.

A—0 to 4 inches; light brown (7.5YR 6/4) fine sandy loam, reddish brown (5YR 4/4) moist; weak thick platy structure parting to weak very fine granular; soft, very friable, nonsticky and nonplastic; moderately alkaline (pH 9.2); clear smooth boundary.

BA—4 to 7 inches; yellowish red (5YR 5/6) fine sandy loam, reddish brown (5YR 4/4) moist; weak moderate prismatic structure parting to weak medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; strongly alkaline (pH 8.6); clear smooth boundary.

B_{tn}—7 to 20 inches; yellowish red (5YR 5/6) clay loam, yellowish red (5YR 4/6) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, moderately sticky and slightly plastic; strongly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

B_n—20 to 26 inches; yellowish red (5YR 5/6) sandy clay loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; violently effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

B_k—26 to 37 inches; 50 percent pink (5YR 8/3) and 50 percent reddish yellow (5YR 6/6) loam, reddish yellow (5YR 6/6) moist; massive; hard, firm, slightly sticky and nonplastic; disseminated calcium carbonate; violently effervescent; very strongly alkaline (pH 9.6); diffuse boundary.

C—37 to 60 inches; reddish yellow (5YR 7/6) very fine sandy loam, yellowish red (5YR 5/6) moist; massive; hard, firm, nonsticky and nonplastic; violently effervescent; very strongly alkaline (pH 9.6).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 0 to 20 inches

Depth to calcic horizon: 20 to more than 60 inches

Depth to natric horizon: 5 to 15 inches

Rock fragment content: 0 to 5 percent

Predominant rock fragment size: gravel

A or E horizon:

Hue—2.5YR to 7.5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—4 to 6

Texture, fine earth fraction—fine sandy loam or sandy loam

Clay content—8 to 20 percent

Reaction—moderately or strongly alkaline

B horizon:

Hue—2.5YR or 5YR

Value—5 to 8 dry, 4 to 6 moist

Chroma—3 to 6

Texture, fine earth fraction—fine sandy loam, sandy clay loam, clay loam, or loam

Clay content—18 to 30 percent

Reaction—strongly or very strongly alkaline

C horizon:

Hue—2.5YR or 5YR

Value—4 to 7 dry, 4 or 5 moist

Chroma—4 to 7

Texture, fine earth fraction—very fine sandy loam, silt loam, loam, or clay loam

Clay content—10 to 35 percent

Reaction—strongly or very strongly alkaline

Ricot Series**Setting***Depth class:* Very deep*Drainage class:* Well drained*Landscape position:* Mesas*Parent material:* Eolian material over outwash-derived mixed sources*Slope:* 1 to 12 percent*Elevation:* 7,500 to 8,000 feet*Mean annual precipitation:* 15 to 20 inches*Mean annual temperature:* 43 to 47 degrees F**Taxonomic Class**

Fine, smectitic, frigid Typic Argiustolls

Typical Pedon

Ricot loam, 1 to 3 percent slopes, 1,100 feet south and 240 feet east of the northwest corner of sec. 11, T. 36 N., R. 13 W.

A—0 to 8 inches; brown (7.5YR 4/2) loam, dark brown (7.5YR 3/2) moist; strong fine granular structure; soft, very friable, slightly sticky and slightly plastic; neutral (pH 7.2); clear smooth boundary.

BABA—8 to 12 inches; brown (7.5YR 5/3) loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure parting to coarse granular; slightly hard, very friable, slightly sticky and slightly plastic; few faint clay films on faces of peds and in pores; neutral (pH 7.2); clear smooth boundary.

Bt—12 to 16 inches; reddish brown (5YR 5/3) clay

loam, reddish brown (5YR 4/3) moist; moderate fine subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; common distinct clay films on faces of peds and in pores; a thin stone line of gravel and cobbles occurs at the lower margin of this horizon; neutral (pH 7.0); clear smooth boundary.

2Bt1—16 to 28 inches; reddish brown (5YR 5/4) clay, reddish brown (5YR 4/4) moist; weak coarse prismatic structure parting to moderate coarse angular blocky; very hard, friable, moderately sticky and moderately plastic; continuous distinct clay films on faces of peds and in pores; 5 percent cobbles and 5 percent stones; neutral (pH 7.0); clear wavy boundary.

2Bt2—28 to 34 inches; reddish brown (5YR 5/4) clay, reddish brown (5YR 4/4) moist; weak coarse prismatic structure parting to moderate coarse angular blocky; very hard, friable, moderately sticky and moderately plastic; continuous distinct clay films on faces of peds and in pores; 5 percent cobbles and 5 percent stones; slightly effervescent; moderately alkaline (pH 7.9); gradual wavy boundary.

2Bk1—34 to 38 inches; reddish brown (5YR 5/4) clay, reddish brown (5YR 4/4) moist; weak medium angular and subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few distinct clay films on faces of peds and in pores; 5 percent cobbles and 5 percent stones; many fine soft masses, seams, filaments, and threads of calcium carbonate; violently effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.

2Bk2—38 to 60 inches; light reddish brown (5YR 6/4) stony clay loam, reddish brown (5YR 5/4) moist; massive; extremely hard, very firm, moderately sticky and moderately plastic; 10 percent cobbles and 15 percent stones; many fine soft masses, seams, filaments, and threads of calcium carbonate; violently effervescent; moderate alkaline (8.0).

Range in Characteristics*Thickness of the mollic epipedon:* 10 to 16 inches*Depth to bedrock:* more than 60 inches*Depth to carbonates:* 12 to 50 inches*A horizon:*

Hue—7.5YR or 5YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—1 to 3

Clay content—15 to 27 percent

Rock fragment content—0 to 5 percent
 Predominant rock fragment size—gravel
 Reaction—neutral or slightly alkaline

Bt horizon:

Hue—7.5YR or 5YR
 Value—5 to 7 dry, 3 to 6 moist
 Chroma—2 to 6
 Texture, fine earth fraction—clay or clay loam
 Clay content—35 to 50 percent
 Rock fragment content—0 to 5 percent
 Predominant rock fragment size—gravel
 Reaction—neutral or slightly alkaline

2B horizon:

Hue—7.5YR or 5YR
 Value—5 to 7 dry, 3 to 6 moist
 Chroma—2 to 6
 Texture—clay or clay loam
 Clay content—35 to 50 percent
 Rock fragment content—10 to 35 percent
 Predominant rock fragment size—gravel and cobbles
 Reaction—neutral to moderately alkaline

Rizno Series

Setting

Depth class: Shallow and very shallow
Drainage class: Well drained
Landscape position: Mesas and structural benches
Parent material: Eolian material and residuum derived from sandstone
Slope: 3 to 15 percent
Elevation: 5,400 to 6,200 feet
Mean annual precipitation: 10 to 13 inches
Mean annual temperature: 49 to 53 degrees F

Taxonomic Class

Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents

Typical Pedon

Rizno very fine sandy loam in an area of Rizno-Gapmesa complex, 3 to 9 percent slopes, about 400 feet west and 2,500 feet north of the southeast corner sec. 13, T. 37 N., R. 20 W.

A1—0 to 2 inches; reddish brown (5YR 5/4) very fine sandy loam, reddish brown (5YR 4/3) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; 5 percent gravel;

slightly alkaline (pH 7.6); abrupt smooth boundary.

A2—2 to 5 inches; reddish brown (5YR 5/4) very fine sandy loam, reddish brown (5YR 4/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine and common fine roots throughout; strongly effervescent; 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bk—5 to 13 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots throughout; common very fine discontinuous tubular pores; calcium carbonate concentrated on bottom of gravel; few faint patchy clay films on faces of peds and in pores; violently effervescent; 5 percent gravel; moderately alkaline (pH 8.2); abrupt smooth boundary.

2R—13 inches; hard Dakota Sandstone.

Range in Characteristics

Depth to bedrock: 6 to 20 inches
Depth to carbonates: 0 to 9 inches
Rock fragment content: 0 to 15 percent
Predominant rock fragment size: gravel

A horizon:

Hue—5YR
 Value—5 or 6 dry, 4 or 5 moist
 Chroma—3 to 6
 Clay content—10 to 17 percent
 Reaction—slightly or moderately alkaline

B horizon:

Hue—5YR
 Value—4 or 5 dry, 3 or 4 moist
 Chroma—4 to 6
 Texture, fine earth fraction—loam or fine sandy loam
 Clay content—10 to 17 percent
 Reaction—slightly or moderately alkaline

Romberg Series

Setting

Depth class: Very deep
Drainage class: Well drained
Landscape position: Canyons, hills, structural benches, and alluvial fans

Parent material: Colluvium and alluvium derived from sandstone and shale

Slope: 6 to 50 percent

Elevation: 5,400 to 6,800 feet

Mean annual precipitation: 10 to 14 inches

Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Loamy-skeletal, mixed, superactive, mesic Ustic Haplargids

Typical Pedon

Romberg very stony loam in an area of Romberg-Crosscan-Rock outcrop complex, 25 to 80 percent slopes, about 1,770 feet east and 1,950 feet north of the southwest corner of sec. 30, T. 37 N., R. 17 W.

A—0 to 2 inches; dark brown (7.5YR 4/4) very stony loam, dark brown (7.5YR 3/4) moist; moderate medium and coarse granular structure; soft, very friable, slightly sticky and slightly plastic; 15 percent gravel, 5 percent cobbles, and 30 percent stones; neutral (pH 7.2); clear wavy boundary.

BA—2 to 5 inches; dark brown (7.5YR 4/4) very stony clay loam, dark brown (7.5YR 3/4) moist; weak medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; 15 percent gravel, 5 percent cobbles, and 30 percent stones; slightly alkaline (pH 7.5); clear wavy boundary.

Bt—5 to 11 inches; brown (7.5YR 5/4) very stony clay loam, dark brown (7.5YR 4/4) moist; weak medium and coarse subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; 15 percent gravel, 5 percent cobbles, and 30 percent stones; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Btk—11 to 20 inches; light brown (7.5YR 6/4) very stony clay loam, dark brown (7.5YR 4/4) moist; weak medium and coarse subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; 15 percent gravel, 5 percent cobbles, and 30 percent stones; few medium soft masses of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bk1—20 to 35 inches; brown (7.5YR 5/4) very stony clay loam, dark brown (7.5YR 4/4) moist; weak fine and medium subangular blocky structure; very hard, firm, moderately sticky and

moderately plastic; 15 percent gravel, 5 percent cobbles, and 30 percent stones; common medium soft masses of calcium carbonate; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk2—35 to 48 inches; brown (7.5YR 5/4) very stony clay loam, dark brown (7.5YR 4/4) moist; weak medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; 15 percent gravel, 5 percent cobbles, and 30 percent stones; few fine soft masses of calcium carbonate; violently effervescent; slightly alkaline (pH 7.6); clear wavy boundary.

Bk3—48 to 60 inches; brown (10YR 5/3) very stony clay loam, dark brown (10YR 4/3) moist; massive; very hard, firm, moderately sticky and slightly plastic; 15 percent gravel, 5 percent cobbles, and 30 percent stones; common fine soft masses of calcium carbonate; violently effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 3 to 40 inches

A horizon:

Hue—7.5YR to 2.5Y

Value—3 to 5 dry, 3 or 4 moist

Chroma—3 or 4

Clay content—15 to 27 percent

Rock fragment content—15 to 70 percent

Predominant rock fragment size—gravel, cobbles, and stones

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—7.5YR to 2.5Y

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 to 4

Texture, fine earth fraction—clay loam or loam

Clay content—18 to 35 percent

Rock fragment content—35 to 55 percent

Predominant rock fragment size—gravel, cobbles, and stones

Reaction—slightly or moderately alkaline

Bk horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 to 5

Texture, fine earth fraction—clay loam or loam

Clay content—18 to 35 percent

Rock fragment content—35 to 70 percent

Reaction—slightly or moderately alkaline

Roubideau Series

Setting

Depth class: Moderately deep

Drainage class: Well drained

Landscape position: Mesas

Parent material: Eolian material derived from sandstone

Slope: 1 to 6 percent

Elevation: 6,800 to 7,800 feet

Mean annual precipitation: 16 to 19 inches

Mean annual temperature: 47 to 50 degrees F

Taxonomic Class

Fine-silty, mixed, superactive, mesic Aridic Haplustalfs

Typical Pedon

Roubideau loam, 1 to 6 percent slopes, about 3,200 feet north and 100 feet west of the southeast corner of sec. 31, T. 35 N., R. 15 W.

A1—0 to 2 inches; brown (7.5YR 5/3) loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots throughout; noneffervescent; neutral (pH 7.0); abrupt smooth boundary.

A2—2 to 6 inches; brown (7.5YR 5/3) loam, dark brown (7.5YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots throughout; few medium discontinuous tubular pores; noneffervescent; neutral (pH 7.0); abrupt smooth boundary.

Bt1—6 to 12 inches; brown (7.5YR 5/4) loam, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; common very fine roots throughout; few very fine discontinuous tubular pores; few faint patchy clay films on faces of peds and in pores; noneffervescent; neutral (pH 7.0); clear smooth boundary.

Bt2—12 to 23 inches; brown (7.5YR 5/4) loam, brown (7.5YR 4/4) moist; moderate medium prismatic structure; very hard, firm, slightly sticky and slightly plastic; common very fine roots throughout; common very fine discontinuous tubular pores; few faint patchy clay films on faces of peds and in pores; noneffervescent; neutral (pH 7.0); clear smooth boundary.

Bt3—23 to 36 inches; strong brown (7.5YR 5/6) loam, strong brown (7.5YR 4/6) moist; moderate

medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; common fine roots throughout; few very fine vesicular pores and few fine discontinuous tubular pores; common faint continuous clay films on faces of peds and in pores; noneffervescent; slightly alkaline (7.4); clear wavy boundary.

Bt4—36 to 38 inches; strong brown (7.5YR 5/6) channery loam, strong brown (7.5YR 4/6) moist; moderate medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; common medium roots throughout; common faint continuous clay films on faces of peds and in pores; noneffervescent; 5 percent sandstone gravel and 15 percent sandstone channers; slightly alkaline (pH 7.4); clear smooth boundary.

2R—38 inches; brownish yellow Cliffhouse Sandstone.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

A horizon:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 3 to 6 moist

Chroma—1 to 4

Clay content—10 to 27 percent

Rock fragment content—0 to 5 percent

Predominant rock fragment size—gravel

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR or 7.5YR

Value—5 to 7 dry, 4 to 6 moist

Chroma—3 to 6

Texture, fine earth fraction—loam, clay loam, or silty clay loam

Clay content—18 to 35 percent

Rock fragment content—0 to 20 percent

Predominant rock fragment size—gravel and channers

Reaction—neutral or slightly alkaline

Ruinpoint Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Mesas

Parent material: Eolian material derived from sandstone

Slope: 1 to 8 percent

Elevation: 5,400 to 5,600 feet

Mean annual precipitation: 10 to 12 inches

Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Fine-silty, mixed, superactive, mesic Ustic Haplocambids

Typical Pedon

Ruinpoint very fine sandy loam, in an area of Ruinpoint-Cahona association, from the adjoining San Juan County, Utah, Central Part, Soil Survey; about 1,000 feet north and 500 feet west of the southeast corner of sec. 8, T. 39 S., R. 26 E.

A—0 to 2 inches; yellowish red (5YR 5/6) very fine sandy loam, reddish brown (5YR 4/4) moist; weak medium platy structure; soft, very friable, moderately sticky and nonplastic; few very fine and fine roots throughout; many fine interstitial pores; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bw—2 to 13 inches; yellowish red (5YR 4/6) silt loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; soft, friable, moderately sticky and slightly plastic; common very fine, fine, and medium roots throughout; common fine discontinuous tubular pores; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—13 to 23 inches; reddish yellow (5YR 6/6) silt loam, yellowish red (5YR 4/6) moist; massive; slightly hard, firm, moderately sticky and slightly plastic; common very fine, fine, and medium roots; common fine tubular pores; common fine irregular carbonate threads; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk2—23 to 60 inches; reddish yellow (5YR 6/6) silt loam, yellowish red (5YR 5/6) moist; massive; slightly hard, firm, moderately sticky and slightly plastic; few very fine, fine, and medium roots; few fine discontinuous tubular pores; common fine carbonate threads; strongly effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to bedrock: more than 60 inches

Rock fragment content: 0 to 5 percent

Predominant rock fragment size: gravel

A horizon:

Hue—5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—4 to 8

Clay content—15 to 20 percent

Reaction—slightly or moderately alkaline

Bw horizon:

Hue—5YR

Value—4 to 6 dry or moist

Chroma—4 to 6

Clay content—10 to 25 percent

Reaction—slightly or moderately alkaline

Bk horizon:

Hue—5YR

Value—6 to 8 dry, 4 to 6 moist

Chroma—3 to 8

Texture, fine earth fraction—silt loam or silty clay loam

Clay content—18 to 35 percent

Reaction—moderately or strongly alkaline

Typical pedon is shared with the San Juan County, Utah, Central Part, Soil Survey to facilitate joining.

Sanchez Series

Setting

Depth class: Shallow

Drainage class: Well drained

Landscape position: Hills and ridges

Parent material: Colluvium and residuum derived from sandstone

Slope: 12 to 45 percent

Elevation: 7,800 to 8,500 feet

Mean annual precipitation: 18 to 20 inches

Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Loamy-skeletal, mixed, superactive, frigid Lithic Haplustalfs

Typical Pedon

Sanchez stony sandy clay loam in an area of Archuleta-Sanchez complex, 12 to 65 percent slopes, from the adjoining La Plata County Area, Colorado, Soil Survey; about 1,150 feet west and 850 feet south of the northeast corner of sec. 24, T. 35 N., R. 8 W.

E—0 to 5 inches; pale brown (10YR 6/3) stony sandy clay loam, brown (10YR 5/3) moist; weak medium granular structure; hard, friable, slightly sticky and nonplastic; 10 percent gravel, 10 percent cobbles, and 10 percent stones; neutral (pH 7.0); clear smooth boundary.

Bt—5 to 11 inches; light brownish gray (10YR 6/2) stony clay loam, dark grayish brown (10YR 4/2) moist; moderate medium granular structure; hard

firm, moderately sticky and moderately plastic; faint continuous clay films on faces of peds; 10 percent gravel and 20 percent stones; neutral (pH 7.0); clear smooth boundary.

BC—11 to 15 inches; light brownish gray (10YR 6/2) stony sandy clay loam, grayish brown (10YR 5/2) moist; weak medium granular structure; hard, firm, moderately sticky and slightly plastic; 10 percent gravel, 10 percent cobbles, and 10 percent stones; neutral (pH 7.0); abrupt smooth boundary.

R—15 inches; hard sandstone.

Range in Characteristics

Depth to bedrock: 11 to 20 inches

Rock fragment content: 30 to 55 percent

Predominant rock fragment size: gravel, cobbles, and stones

E horizon:

Hue—7.5YR or 10YR

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3

Clay content—20 to 35 percent

Reaction—slightly acid or neutral

Bt horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 to 4

Texture, fine earth fraction—clay loam or sandy clay loam

Clay content—20 to 35 percent

Reaction—slightly acid or neutral

Typical pedon is shared with the La Plata County Area, Colorado, Soil Survey to facilitate joining. The pedon is misclassified in the La Plata County Area Soil Survey due to insufficient coarse fragments.

Schrader Series

Setting

Depth class: Very deep

Drainage class: Poorly drained

Landscape position: Flood plains

Parent material: Alluvium derived from mixed sources

Slope: 0 to 5 percent

Elevation: 7,000 to 7,200 feet

Mean annual precipitation: 16 to 20 inches

Mean annual temperature: 41 to 47 degrees F

Taxonomic Class

Coarse-loamy, mixed, superactive, frigid Cumulic Endoaquolls

Typical Pedon

Schrader loam in an area of Dalmatian-Apmay-Schrader complex, 0 to 5 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; about 1,000 feet east and 1,350 feet south of the northwest corner of sec. 5, T. 38 N., R. 13 W.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure parting to weak fine granular; hard, friable, nonsticky and slightly plastic; many very fine and common fine and medium roots; many very fine continuous pores; slightly effervescent; slightly alkaline (pH 7.4); clear smooth boundary.

A—4 to 13 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; hard, friable, nonsticky and slightly plastic; common very fine and few medium roots; common very fine continuous pores; slightly effervescent; neutral (pH 7.2); clear smooth boundary.

AC1—13 to 17 inches; dark brown (10YR 4/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; common medium distinct strong brown (7.5YR 5/6) iron masses; massive; hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine continuous pores; neutral (pH 7.0); clear smooth boundary.

AC2—17 to 24 inches; brown (10YR 4/3) sandy clay loam, very dark grayish brown (10YR 3/2) moist; common medium distinct strong brown (7.5YR 4/6) iron masses; weak, medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine continuous pores; neutral (pH 6.8); clear smooth boundary.

C—24 to 60 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; many medium prominent strong brown (7.5YR 4/6) iron masses; massive; slightly hard, very friable, nonsticky and nonplastic; neutral (pH 7.0).

Range in Characteristics

Thickness of the mollic epipedon: 24 to 60 inches

Depth to bedrock: more than 60 inches

Rock fragment content: 0 to 10 percent

Predominant rock fragment size: gravel

Depth to water table: 12 to 24 inches

A horizon:

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3

Clay content—10 to 25 percent

Reaction—neutral or slightly alkaline

AC horizon, when present:

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3

Texture, fine earth fraction—fine sandy loam, loam, or stratified fine sandy loam-sandy clay loam

Reaction—neutral or slightly alkaline

C horizon:

Hue—7.5YR to 2.5Y

Value—4 to 6 dry, 3 or 4 moist

Chroma—1 to 3

Texture, fine earth fraction—fine sandy loam

Clay content—8 to 15 percent

Reaction—neutral or slightly alkaline

Typical pedon is shared with the Animas-Dolores Area, Colorado, Soil Survey to facilitate joining.

Sharps Series

Setting

Depth class: Moderately deep

Drainage class: Well drained

Landscape position: Mesas and hills

Parent material: Eolian material derived from sandstone

Slope: 2 to 12 percent

Elevation: 6,200 to 7,400 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine-silty, mixed, superactive, mesic Aridic Haplustalfs

Typical Pedon

Sharps loam in an area of Sharps-Pulpit complex, 2 to 6 percent slopes, about 200 feet east and 600 feet south of the northwest corner of sec. 18, T. 41 N., R. 19 W. (fig. 9)

Ap—0 to 6 inches; light reddish brown (5YR 6/4) loam, reddish brown (5YR 4/4) moist; moderate medium granular structure; slightly hard, very

friable, slightly sticky and slightly plastic; neutral (pH 7.0); clear smooth boundary.

BA—6 to 9 inches; light reddish brown (5YR 6/4) loam, reddish brown (5YR 4/4) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; few faint clay films on the inside of root channels; moderately alkaline (pH 8.1); clear smooth boundary.

Bt—9 to 19 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common distinct clay films on faces of peds and in root channels; moderately alkaline (pH 8.1); clear wavy boundary.

Bk1—19 to 25 inches; light reddish brown (5YR 6/4) loam, reddish brown (5YR 5/4) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few faint patchy clay films on faces of peds and in root channels; visible secondary calcium carbonate occurring as soft masses and in thin seams and streaks; violently effervescent; moderately alkaline (pH 8.1); gradual wavy boundary.

Bk2—25 to 30 inches; pink (5YR 8/4) loam, pink (5YR 7/4) moist; massive; hard, friable, slightly sticky and slightly plastic; visible secondary calcium carbonate occurring in finely divided forms; violently effervescent; moderately alkaline (pH 8.1); gradual wavy boundary.

2Cr—30 inches; shale and soft sandstone.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

Depth to carbonates: 6 to 30 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—5YR to 10YR

Value—5 to 7 dry, 3 to 6 moist

Chroma—2 to 6

Clay content—10 to 27 percent

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR or 7.5YR

Value—5 to 7 dry, 3 to 6 moist

Chroma—3 to 6

Texture, fine earth fraction—loam, clay loam, or silty clay loam

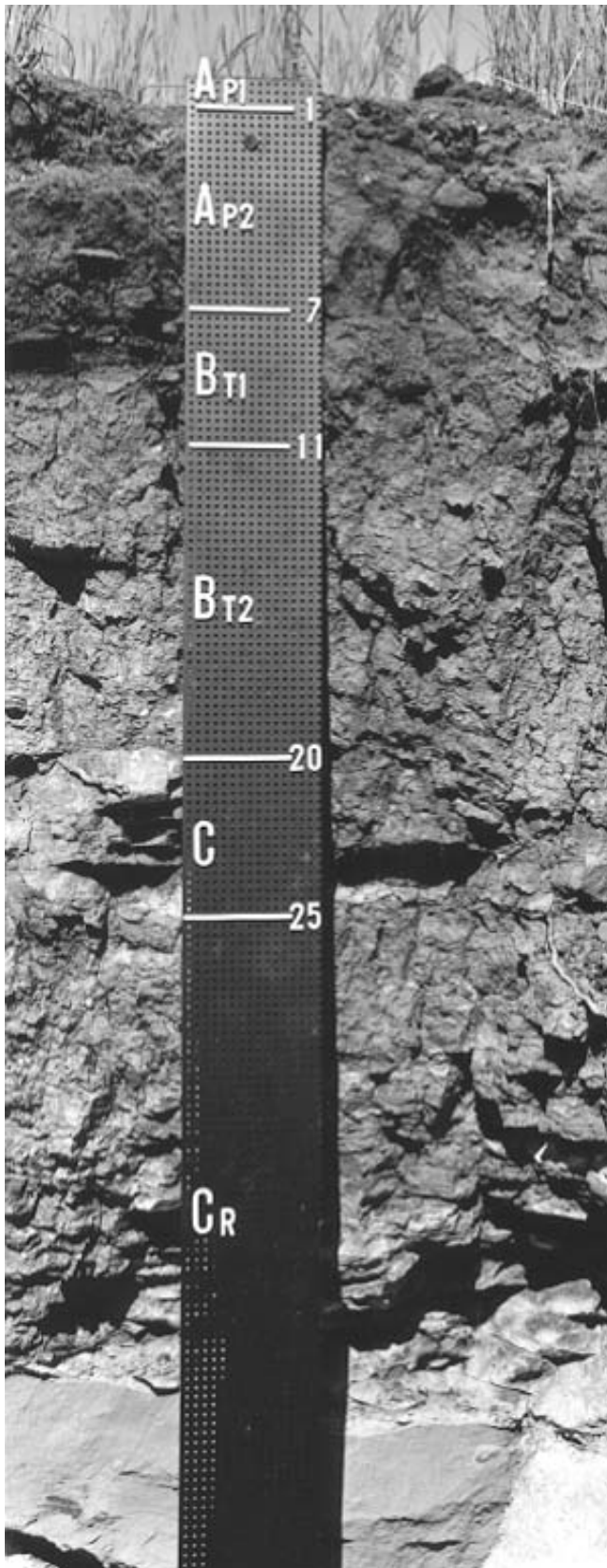


Fig. 9.—Typical profile of Sharps loam, 6 to 12 percent slopes, with soft sandstone and shale bedrock below 25 inches.

Clay content—18 to 35 percent
Reaction—neutral to moderately alkaline

Bk horizon:

Hue—5YR to 10YR
Value—4 to 8 dry, 4 to 7 moist
Chroma—4 to 8 moist
Texture, fine earth fraction—loam, silty clay loam, or clay loam
Clay content—18 to 35 percent
Reaction—strongly alkaline

The soils mapped as Sharps in map unit 114-Sharps loam, dry, 6 to 12 percent slopes and map unit 115-Sharps, dry-Gapmesa complex, 6 to 12 percent slopes are taxadjuncts to the series. They are in an aridic moisture regime that borders ustic. The Sharps series are in an ustic moisture regime that borders aridic. However, these soils are morphologically similar to the series and give similar responses to use and management. In this survey area the Sharps, dry soils are fine-silty, mixed, superactive, mesic Ustic Haplargids.

Sheek Series

Setting

Depth class: Very deep
Drainage class: Well drained
Landscape position: Alluvial fans, canyons, and hills
Parent material: Colluvium and slope alluvium derived from sandstone and shale
Slope: 6 to 80 percent
Elevation: 7,100 to 8,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual temperature: 40 to 47 degrees F

Taxonomic Class

Loamy-skeletal, mixed, superactive, frigid Typic Haplustalfs

Typical Pedon

Sheek very stony sandy loam in an area of Sheek-Archuleta-Rock outcrop complex, 25 to 80 percent slopes, about 900 feet north and 200 feet west of the southeast corner of sec. 36, T. 36 N., R. 13 W.

Oe—0 to 1 inch; moderately decomposed leaves, twigs, and needles; abrupt smooth boundary.
A—1 to 5 inches; brown (10YR 5/3) very stony sandy loam, dark brown (10YR 3/3) moist; moderate fine granular structure; hard, friable, slightly sticky and nonplastic; 10 percent gravel, 15 percent cobbles, and 15 percent stones; neutral (pH 6.8); clear wavy boundary.

- Bt1**—5 to 11 inches; brown (7.5YR 5/4) very stony clay loam, dark brown (7.5YR 4/4) moist; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; very few faint clay films on faces of peds; 15 percent gravel, 15 percent cobbles, and 20 percent stones; neutral (pH 6.8); gradual wavy boundary.
- Bt2**—11 to 17 inches; brown (7.5YR 5/4) very stony clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few faint clay films on faces of peds; 15 percent gravel, 15 percent cobbles, and 20 percent stones; neutral (pH 7.0); gradual wavy boundary.
- Bt3**—17 to 27 inches; brown (7.5YR 5/4) very stony clay loam, dark brown (7.5YR 4/4) moist; strong coarse subangular blocky structure parting to strong medium angular blocky; very hard, very firm, moderately sticky and moderately plastic; common distinct clay films on faces of peds and in pores; 25 percent gravel, 10 percent cobbles, and 20 percent stones; slightly acid (pH 6.5); gradual wavy boundary.
- Bt4**—27 to 43 inches; brown (7.5YR 5/4) very stony clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few distinct clay films on faces of peds; 25 percent gravel, 10 percent cobbles, and 20 percent stones; neutral (pH 6.6); gradual smooth boundary.
- BC**—43 to 60 inches; brown (7.5YR 5/4) very stony clay loam, dark brown (7.5YR 4/4) moist; massive to weak medium subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; 30 percent gravel, 5 percent cobbles, and 20 percent stones; slightly alkaline (pH 7.4).

Range in Characteristics

Depth to bedrock: more than 60 inches
Depth to carbonates: 40 to more than 60 inches

A horizon:

Hue—7.5YR or 10YR
 Value—4 or 5 dry, 2 or 3 moist
 Chroma—2 to 4
 Texture, fine earth fraction—loam, clay loam, or sandy loam
 Clay content—10 to 20 percent
 Reaction—slightly acid or neutral

Bt horizon:

Hue—7.5YR to 2.5Y
 Value—4 to 6 dry, 3 to 5 moist
 Chroma—4 to 6
 Texture, fine earth fraction—loam, clay loam, or sandy clay loam
 Rock fragment content—35 to 70 percent
 Predominant rock fragment size—gravel, cobbles, and stones
 Clay content—18 to 35 percent
 Reaction—slightly acid to slightly alkaline

BC horizon:

Hue—7.5YR to 2.5Y
 Value—4 to 6 dry, 3 to 5 moist
 Chroma—4 to 6
 Clay content—27 to 35 percent
 Reaction—slightly acid to slightly alkaline

Sheppard Series

Setting

Depth class: Very deep
Drainage class: Somewhat excessively drained
Landscape position: Dunes, alluvial fans, and terraces
Parent material: Eolian material derived from sandstone
Slope: 1 to 6 percent
Elevation: 5,000 to 5,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual temperature: 52 to 56 degrees F

Taxonomic Class

Mixed, mesic Typic Torripsamments

Typical Pedon

Sheppard fine sand, 1 to 6 percent slopes, about 2,640 feet east and 2,640 feet north of the southwest corner of sec. 14, T. 35 N., R. 20 W.

- C1**—0 to 2 inches; light brown (7.5YR 6/4) fine sand, brown (7.5YR 5/4) moist; weak thick platy structure parting to single grain; loose, very friable, nonsticky and nonplastic; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- C2**—2 to 7 inches; light brown (7.5YR 6/4) fine sand, brown (7.5YR 5/4) moist; massive and single grain; soft, very friable, nonsticky and nonplastic; slightly effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

C3—7 to 60 inches; brown (7.5YR 5/4) fine sand, dark brown (7.5YR 4/4) moist; massive and single grain; soft, very friable, nonsticky and nonplastic; slightly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 0 to 10 inches

Rock fragment content: 0 to 5 percent

Predominant rock fragment size: gravel

C horizon:

Hue—5YR or 7.5YR

Value—5 to 7 dry, 4 to 6 moist

Chroma—3 to 6

Clay content—3 to 10 percent

Reaction—slightly or moderately alkaline

Sideshow Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Hills, alluvial fans, and terraces

Parent material: Alluvium derived from shale

Slope: 0 to 40 percent

Elevation: 6,000 to 7,500 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine, smectitic, mesic Aridic Haplusterts

Typical Pedon

Sideshow silty clay loam, 6 to 12 percent slopes, about 2,350 feet east and 1,800 feet south of the northwest corner of sec. 30, T. 36 N., R. 14 W.

A—0 to 3 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; moderate medium granular structure; very hard, firm, very sticky and very plastic; common very fine and fine roots throughout; many fine pores; slightly effervescent; 1 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.

AB—3 to 6 inches; brown (10YR 5/3) clay, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; very hard, firm, very sticky and very plastic; common very fine and fine roots throughout; common fine pores; 1 cm-wide cracks along ped faces; slightly effervescent; 1 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.

Bss—6 to 25 inches; brown (10YR 5/3) clay, dark grayish brown (10YR 4/2) moist; strong coarse prismatic structure parting to strong coarse angular blocky; extremely hard, very firm, very sticky and very plastic; common fine roots between peds; common fine tubular pores; intersecting slickensides; slightly effervescent; 1 percent sandstone gravel; moderately alkaline (pH 8.4); clear wavy boundary.

Bky—25 to 60 inches; brown (10YR 5/3) clay, dark grayish brown (10YR 4/2) moist; weak coarse angular blocky structure; extremely hard, very firm, very sticky and very plastic; common very fine and fine roots between peds; common fine tubular pores; common fine and medium threads and soft masses of lime and common fine and medium irregular masses of gypsum; slightly effervescent; 1 percent gravel; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: more than 60 inches

Rock fragment content: 0 to 5 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR to 2.5Y

Value—4 to 6 dry, 3 or 4 moist

Chroma—1 to 3

Clay content—27 to 40 percent

Reaction—slightly or moderately alkaline

B horizon:

Hue—7.5YR to 2.5Y

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 6

Texture, fine earth fraction—silty clay loam, clay loam, or clay

Clay content—35 to 60 percent

Reaction—slightly or moderately alkaline

Sideslide Series

Setting

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landscape position: Drainageways, hills, and alluvial fans

Parent material: Alluvium and slope alluvium derived from Mancos Shale

Slope: 3 to 9 percent

Elevation: 6,200 to 7,400 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, calcareous, mesic
Typic Endoaquepts

Typical Pedon

Sideslide silty clay loam, 3 to 9 percent slopes, about 2,300 feet east and 500 feet south of the northwest corner of sec. 8, T. 35 N., R. 13 W.

Ap—0 to 3 inches; pale brown (10YR 6/3) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; moderately hard, very firm, slightly sticky and moderately plastic; many very fine and common fine and medium roots throughout; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—3 to 25 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine faint yellowish brown (10YR 5/4) iron accumulations; moderate very fine subangular blocky structure; very hard, firm, slightly sticky and moderately plastic; common very fine and fine, and few medium roots throughout; common very fine, fine, and medium discontinuous tubular pores; violently effervescent; moderately alkaline (pH 8.2); gradual smooth boundary.

C1—25 to 40 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine faint yellowish brown (10YR 5/4) iron accumulations and common prominent gray (2.5Y 6/1) iron depletions; massive; very hard, firm, slightly sticky and moderately plastic; many continuous faint pressure faces throughout; common very fine and few moderate roots throughout; common very fine and fine discontinuous tubular pores; few fine carbonate threads; strongly effervescent; moderately alkaline (pH 8.2); gradual smooth boundary.

C2—40 to 60 inches; light brownish gray (10YR 6/2) clay, dark grayish brown (2.5Y 4/2) moist; common fine faint yellowish brown (10YR 5/4) iron masses and common prominent gray (2.5Y 6/1) iron depletions; massive; very hard, firm, slightly sticky and very plastic; few very fine roots throughout; few fine carbonate threads; strongly effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Control section clay content: 27 to 35 percent
Depth to bedrock: more than 60 inches

Depth to carbonates: 10 to 40 inches

Depth to water table: 12 to 24 inches

A horizon:

Hue—10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Clay content—27 to 40 percent

Rock fragment content—0 to 10 percent

Predominant rock fragment size—gravel

Reaction—slightly or moderately alkaline

Bw & C horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 to 5 moist

Chroma—1 to 3

Texture, fine earth fraction—silty clay loam, clay loam, or clay

Clay content—27 to 50 percent

Rock fragment content—0 to 3 percent

Predominant rock fragment size—gravel

Reaction—moderately alkaline

Stephouse Series**Setting**

Depth class: Shallow and very shallow

Drainage class: Well drained

Landscape position: Ridges and mesas

Parent material: Residuum derived from sandstone and shale

Slope: 3 to 10 percent

Elevation: 6,800 to 7,500 feet

Mean annual precipitation: 16 to 18 inches

Mean annual temperature: 47 to 50 degrees F

Taxonomic Class

Loamy, mixed, superactive, mesic Lithic
Calcustepts

Typical Pedon

Stephouse gravelly fine sandy loam in an area of Stephouse-Rock outcrop complex, 3 to 10 percent slopes, Mesa Verde National Park, unsectionalized area: lat. 37 degrees 08 minutes 56 seconds N. and long. 108 degrees 30 minutes 57 seconds W., NAD 27.

A—0 to 1 inch; yellowish brown (10YR 5/4) gravelly fine sandy loam, brown (10YR 4/3) moist; single grain; loose nonsticky and nonplastic; few very fine roots throughout; common fine rounded soft masses of carbonate; 30 percent gravel; strongly

effervescent; moderately alkaline (pH 8.3); abrupt smooth boundary.

Bk1—1 to 3 inches; yellowish brown (10YR 5/4) gravelly fine sandy loam, brown (10YR 4/3) moist; weak very fine granular; soft, very friable, slightly sticky and nonplastic; common very fine, fine, and medium roots throughout; common fine rounded soft masses of carbonate; 20 percent gravel; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bk2—3 to 8 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine, fine, and medium roots throughout; many medium rounded soft masses of carbonate; 30 percent gravel; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk3—8 to 12 inches; pale brown (10YR 6/3) very gravelly fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine, fine, and medium roots throughout; many medium rounded soft masses of carbonate; 40 percent gravel; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

R—12 inches; hard Cliffhouse Sandstone.

Range in Characteristics

Depth to bedrock: 6 to 20 inches

Depth to calcic horizon: 0 to 6 inches

Rock fragment content: 5 to 50 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 to 6

Clay content—8 to 18 percent

Reaction—moderately alkaline

Bk horizon:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 to 6

Texture, fine earth fraction—loam, fine sandy loam, or sandy loam

Clay content—8 to 18 percent

Reaction—moderately alkaline

Tesajo Series

Setting

Depth class: Very deep

Drainage class: Moderately well drained

Landscape position: Flood plains

Parent material: Alluvium derived from mixed sources

Slope: 0 to 2 percent

Elevation: 6,200 to 7,000 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Loamy-skeletal, mixed, superactive, mesic Cumulic Haplustolls

Typical Pedon

Tesajo gravelly sandy loam in an area of Umbarg-Winner-Tesajo complex, 0 to 2 percent slopes, about 2,400 feet north and 1,900 feet west of the southeast corner of sec. 31, T. 36 N., R. 13 W.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) gravelly sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; 25 percent gravel and 5 percent cobbles; neutral (pH 6.6); clear wavy boundary.

A2—3 to 11 inches; dark grayish brown (10YR 4/2) very cobbly sandy loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; 35 percent gravel and 20 percent cobbles; neutral (pH 7.0); gradual wavy boundary.

A3—11 to 19 inches; dark grayish brown (10YR 4/2) extremely cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; 30 percent gravel and 35 percent cobbles; neutral (pH 7.0); clear wavy boundary.

A4—19 to 36 inches; grayish brown (10YR 5/2) extremely cobbly loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; loose nonsticky and nonplastic; 25 percent gravel, 30 percent cobbles, and 10 percent stones; neutral (pH 7.0); clear wavy boundary.

Ag—36 to 60 inches; dark grayish brown (10YR 4/2) extremely cobbly sandy loam, very dark grayish brown (10YR 2/2) moist; few fine faint strong brown (7.5YR 5/6), moist, iron masses; single grain; loose nonsticky and nonplastic; 25 percent gravel, 30 percent cobbles, and 10 percent stones; thin dark coatings on rock fragments; neutral (pH 7.0).

Range in Characteristics

Thickness of the mollic epipedon: 20 to more than 60 inches

Depth to bedrock: more than 60 inches

Depth to carbonates: 30 to more than 60 inches

Depth to water table: more than 40 inches

Rock fragment content: 15 to 80 percent

Predominant rock fragment size: gravel and cobbles

A horizon:

Hue—7.5YR or 10YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3

Clay content—10 to 18 percent

Reaction—neutral

C horizon, if present:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 2 to 4 moist

Chroma—2 or 3

Texture, fine earth fraction—sandy loam or loamy sand

Clay content—10 to 18 percent

Reaction—neutral to moderately alkaline

Torriorthents

Setting

Depth class: Very shallow to very deep

Drainage class: Well to somewhat excessively drained

Landscape position: Escarpments, canyons, terraces, and hills

Parent material: Colluvium, alluvium, and residuum derived from mixed sources

Slope: 12 to 100 percent

Elevation: 5,000 to 7,000 feet

Annual precipitation: 8 to 16 inches

Annual temperature: 50 to 56 degrees F

Taxonomic Class

Torriorthents

Reference Pedon

Torriorthents in an area of Torriorthents-Badland complex, 25 to 100 percent slopes, about 150 feet east and 400 feet north of the southwest corner of sec. 23, T. 35 N., R. 16 W.

A—0 to 4 inches; very pale brown (10YR 7/4) silty clay loam, olive brown (2.5Y 4/3) moist; moderate fine granular structure; moderately hard, very friable, slightly sticky and slightly plastic; common very fine, common fine, and few medium roots throughout; violently effervescent; 2 percent gravel; moderately alkaline (pH 8.2); abrupt smooth boundary.

C1—4 to 11 inches; very pale brown (10YR 7/4) silty

clay loam, olive brown (2.5Y 4/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, common fine, and few medium roots throughout; common very fine and common fine discontinuous tubular pores; violently effervescent; 1 percent gravel; moderately alkaline (pH 8.2); clear smooth boundary.

C2—11 to 14 inches; very pale brown (10YR 7/4) silty clay loam, olive brown (2.5Y 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and common fine roots throughout; common very fine discontinuous tubular pores; strongly effervescent; 1 percent gravel; moderately alkaline (pH 8.2); clear smooth boundary.

Cr—14 inches; soft Mancos Shale.

Range in Characteristics

Depth to bedrock: 6 to more than 60 inches

Depth to carbonates: 0 to more than 60 inches

Rock fragment content: 0 to 60 percent

Clay content: 27 to 60 percent

Reaction: neutral to strongly alkaline

A horizon:

Hue—7.5YR to 2.5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 6

C horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 7 moist

Chroma—2 to 6

Texture—clay, silty clay loam, or clay loam

Tragmon Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Hills, canyons, mesas, and alluvial fans

Parent material: Colluvium, slope alluvium, and alluvium derived from sandstone and shale

Slope: 3 to 20 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, frigid Typic Argiustolls

Typical Pedon

Tragmon sandy loam in an area of Tragmon-Sheek complex, 12 to 25 percent slopes, about 2,900 feet east and 2,500 feet north of the southwest corner of sec. 33, T. 35 N., R. 15 W.

A1—0 to 2 inches; brown (10YR 5/3) sandy loam; dark brown (10YR 3/3) moist; single grain, loose nonsticky and nonplastic; many very fine roots throughout; 3 percent gravel; neutral (pH 7.2); abrupt smooth boundary.

A2—2 to 5 inches; brown (10YR 5/3) sandy loam; dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots throughout; few very fine vertical discontinuous tubular pores; 3 percent gravel; neutral (pH 7.2); clear smooth boundary.

A3—5 to 11 inches; brown (10YR 5/3) loam; dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots throughout; few very fine vertical discontinuous tubular pores; 3 percent gravel and 1 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bt1—11 to 36 inches; pale brown (10YR 6/3) loam; dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine roots throughout; few very fine oblique and few fine oblique discontinuous tubular pores; common faint clay films on faces of peds and in pores; 3 percent gravel; neutral (pH 7.2); clear smooth boundary.

Bt2—36 to 40 inches; yellowish brown (10YR 5/4) loam; brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; 3 percent gravel; neutral (pH 7.2); gradual smooth boundary.

C1—40 to 48 inches; light yellowish brown (10YR 6/4) loam; dark yellowish brown (10YR 4/4) moist; massive; hard firm, slightly sticky and slightly plastic; 7 percent gravel; neutral (pH 7.2); clear smooth boundary.

C2—48 to 60 inches; light yellowish brown (10YR 6/4) loam; dark yellowish brown (10YR 4/4) moist; massive; hard firm, slightly sticky and slightly plastic; 7 percent gravel; slightly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Thickness of the mollic epipedon: 7 to 16 inches

Depth to bedrock: more than 60 inches

Depth to carbonates: 40 to more than 60 inches

A horizon:

Hue—10YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3

Clay content—10 to 20 percent

Rock fragment content—0 to 20 percent

Predominant rock fragment size—gravel

Reaction—slightly acid to slightly alkaline

B horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 6

Texture, fine earth fraction—loam, sandy clay loam, or clay loam

Clay content—18 to 35 percent

Rock fragment content—0 to 20 percent

Predominant rock fragment size—gravel

Reaction—neutral to moderately alkaline

C horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 6

Texture, fine earth fraction—loam, sandy clay loam, or clay loam

Clay content—18 to 35 percent

Rock fragment content—0 to 30 percent

Predominant rock fragment size—gravel

Reaction—neutral to moderately alkaline

Typic Argiaquolls

Setting

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landscape position: Drainageways

Parent material: Alluvium derived from sandstone and shale

Slope: 0 to 3 percent

Elevation: 7,400 to 8,000 feet

Mean annual precipitation: 15 to 20 inches

Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Typic Argiaquolls

Reference Pedon

Typic Argiaquolls, 0 to 3 percent slopes, 300 feet west, 800 feet south of the northeast corner sec. 30, T. 35 N., R. 14 W.

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) loam, black (10YR 2/1) moist; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, coarse and medium roots throughout; slightly alkaline (pH 7.6); clear smooth boundary.

A2—4 to 10 inches; very dark grayish brown (10YR 3/2) silty clay loam, black (10YR 2/1) moist; few fine prominent yellowish red (5YR 5/6) (moist) iron masses; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common medium and very fine roots throughout; slightly alkaline (pH 7.6); clear smooth boundary.

Bt—10 to 24 inches; dark grayish brown (10YR 4/2) silty clay loam, black (10YR 2/1) moist; common fine prominent yellowish red (5YR 5/6) (moist) iron masses; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; few medium and very fine roots throughout, common very fine and coarse discontinuous tubular pores; common distinct discontinuous clay films between sand grains; slightly alkaline (pH 7.8); clear smooth boundary.

Cg—24 to 60 inches; brown (10YR 5/3) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine prominent yellowish red (5YR 5/6) (moist) iron masses; massive; slightly hard, friable, slightly sticky and slightly plastic; common medium and very fine roots throughout; common very fine discontinuous tubular pores; moderately alkaline (pH 8.0).

Range in Characteristics

Thickness of the mollic epipedon: 10 to 30 inches

Depth to bedrock: more than 60 inches

Rock fragment content: 0 to 5 percent

Predominant rock fragment size: gravel

Depth to water table: 12 to 60 inches

A horizon:

Hue—10YR

Value—3 dry, 2 moist

Chroma—1 or 2 1 or

Clay content—15 to 35 percent

Reaction—slightly

B horizon:

Hue—10YR

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2

Texture, fine earth fraction—silty clay loam or clay loam

Clay content—27 to 35 percent

Reaction—slightly alkaline

C horizon:

Hue—10YR

Value—5 dry, 4 moist

Chroma—2 or 3

Texture, fine earth fraction—sandy loam, loam, or silty clay loam

Clay content—15 to 35 percent

Reaction—moderately alkaline

Typic Torriorthents

Setting

Depth class: Very shallow to very deep

Drainage class: Well or somewhat excessively drained

Landscape position: Terrace escarpments, hills, terraces, mesas, canyons, and alluvial fans

Parent material: Colluvium, alluvium, and residuum derived from mixed sources

Slope: 12 to 100 percent

Elevation: 5,000 to 5,700 feet

Mean annual precipitation: 8 to 10 inches

Mean annual temperature: 52 to 56 degrees F

Taxonomic Class

Typic Torriorthents

Reference Pedon

Typic Torriorthents in an area of Typic Torriorthents-Rock outcrop complex, 12 to 80 percent slopes, about 1,600 feet south and 800 feet west of the northeast corner of sec. 18, T. 35 N., R. 19 W.

A—0 to 3 inches; brown (7.5YR 5/4) extremely stony sandy loam, brown (7.5YR 4/4) moist; weak medium granular structure parting to single grain; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; strongly effervescent; 40 percent gravel, 5 percent cobbles, and 20 percent stones; slightly alkaline (pH 7.5); clear wavy boundary.

AC—3 to 7 inches; light brown (7.5YR 6/4) very stony clay loam, brown (7.5YR 5/3) moist; weak medium subangular blocky structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; strongly effervescent; 30 percent gravel, 5 percent cobbles, and 20 percent stones; moderately alkaline (pH 8.2); clear wavy boundary.

2Ck—7 to 16 inches; light gray (2.5Y 7/2) very stony silty clay loam, light brownish gray (2.5Y 6/2)

moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine and very fine roots; strongly effervescent; disseminated calcium carbonate; 30 percent gravel, 5 percent cobbles, and 20 percent stones; moderately alkaline (pH 8.2); abrupt wavy boundary.

Cr—16 inches; soft, weathered, calcareous mudstone.

Range in Characteristics

Depth to bedrock: 10 to more than 60 inches

Depth to carbonates: 0 to more than 60 inches

Rock fragment content: 0 to 60 percent

Predominant rock fragment size: gravel, cobbles, and stones

A horizon:

Hue—7.5YR to 2.5Y

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 6

Clay content—10 to 20 percent

Reaction—neutral to strongly alkaline

C horizon:

Hue—10YR to 2.5Y

Value—4 to 7 dry, 3 to 7 moist

Chroma—2 to 6

Texture, fine earth fraction—sandy loam, loam, silty clay loam, or clay loam

Clay content—10 to 35 percent

Reaction—neutral to strongly alkaline

Umbarg Series

Setting

Depth class: Very deep

Drainage class: Moderately well drained

Landscape position: Flood plains

Parent material: Alluvium derived from mixed sources

Slope: 0 to 2 percent

Elevation: 6,200 to 7,000 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, mesic Cumulic Haplustolls

Typical Pedon

Umbarg loam in an area of Umbarg-Winner-Tesajo complex, 0 to 2 percent slopes, about 800 feet north and 2,525 feet east of the southwest corner of sec. 31, T. 36 N., R. 13 W.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) loam, black (10YR 2/1) moist; moderate fine granular structure; slightly hard, friable, nonsticky and nonplastic; neutral (pH 7.0); abrupt smooth boundary.

A2—2 to 5 inches; dark grayish brown (10YR 4/2) clay loam, black (10YR 2/1) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; slightly effervescent; slightly alkaline (pH 7.4); abrupt wavy boundary.

A3—5 to 12 inches; dark grayish brown (10YR 4/2) clay loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine soft masses of calcium carbonate; strongly effervescent; slightly alkaline (pH 7.6); clear wavy boundary.

A4—12 to 33 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; slightly alkaline (pH 7.6); gradual wavy boundary.

Ag—33 to 42 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; many large distinct strong brown (7.5YR 5/6), moist, iron masses; massive; slightly hard, friable, nonsticky and nonplastic; neutral (pH 7.2); clear wavy boundary.

Cg—42 to 60 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; many large distinct strong brown (7.5YR 5/6), moist, iron masses; massive; slightly hard, friable, nonsticky and nonplastic; 35 percent gravel, 15 percent cobbles, and 10 percent stones; neutral (pH 7.2).

Range in Characteristics

Thickness of the mollic epipedon: 20 to more than 40 inches

Depth to bedrock: more than 60 inches

Depth to carbonates: 0 to 30 inches

Depth to water table: 36 to 60 inches

A horizon:

Hue—10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3

Clay content—15 to 35 percent

Rock fragment content—0 to 5 percent

Predominant rock fragment size—gravel

Reaction—neutral to moderately alkaline

C horizon:

Hue—10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 or 3
 Texture, fine earth fraction—loam or clay loam
 Clay content—15 to 35 percent
 Rock fragment content—0 to 60 percent
 Predominant rock fragment size—gravel,
 cobbles, and stones
 Reaction—neutral to moderately alkaline

Ustic Torrifluvents

Setting

Depth class: Very deep
Drainage class: Somewhat excessively drained
Landscape position: Drainageways and flood plains
Parent material: Alluvium derived from mixed sources
Slope: 0 to 3 percent
Elevation: 5,400 to 6,200 feet
Mean annual precipitation: 10 to 13 inches
Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Ustic Torrifluvents

Reference Pedon

Ustic Torrifluvents, 0 to 3 percent slopes, about 1,140 feet south and 900 feet west of the northeast corner of sec. 25, T. 37 N., R. 18 W.

- A—0 to 3 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; weak medium granular structure; soft, loose, nonsticky and nonplastic; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
- C1—3 to 11 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; single grain; loose nonsticky and nonplastic; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
- C2—11 to 27 inches; brown (10YR 5/3) stratified very gravelly sandy loam, brown (10YR 4/3) moist; single grain; loose nonsticky and nonplastic; slightly effervescent; moderately alkaline (8.0); abrupt smooth boundary.
- C3—27 to 38 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary
- C4—38 to 60 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; massive; soft, very

friable, nonsticky and nonplastic; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to bedrock: more than 60 inches
Rock fragment content: 0 to 60 percent
Predominant rock fragment size: gravel

A horizon:

Hue—10YR
 Value—4 to 6 dry, 3 to 5 moist
 Chroma—2 to 6
 Clay content—0 to 15 percent
 Reaction—neutral to moderately alkaline

C horizon:

Hue—10YR
 Value—4 to 6 dry, 3 to 5 moist
 Chroma—2 to 6
 Texture, fine earth fraction—loamy sand, sandy loam, loam, or clay loam
 Clay content—0 to 35 percent
 Reaction—neutral to moderately alkaline

Ustic Torriorthents

Setting

Depth class: Very deep
Drainage class: Well or somewhat excessively drained
Landscape position: Escarpments, alluvial fans, drainageways, terraces, and flood plains
Parent material: Alluvium derived from sandstone and shale
Slope: 1 to 60 percent
Elevation: 5,400 to 6,200 feet
Mean annual precipitation: 10 to 13 inches
Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Ustic Torriorthents

Reference Pedon

Ustic Torriorthents in an area of Ustic Torriorthents-Gullied land complex, 1 to 60 percent slopes, about 1,400 feet west and 2,400 feet north of the southeast corner of sec. 11, T. 35 N., R. 16 W.

- A1—0 to 1 inch; brown (10YR 4/3) fine sandy loam, dark brown (10YR 3/3) moist; weak fine platy structure; soft, very friable, nonsticky and

nonplastic; common very fine and fine roots;
slightly effervescent; slightly alkaline (pH 7.8);
clear smooth boundary.

A2—1 to 7 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) moist; weak fine platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

C—7 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak fine platy structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; violently effervescent; 5 percent gravel; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 0 to more than 20 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR to 2.5Y

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 6

Clay content—8 to 20 percent

Reaction—slightly or moderately alkaline

C horizon:

Hue—7.5YR to 2.5Y

Value—4 to 7 dry, 3 to 7 moist

Chroma—2 to 6

Texture, fine earth fraction—fine sandy loam, sandy loam, loam, silty clay loam, or clay loam

Clay content—8 to 35 percent

Reaction—slightly or moderately alkaline

Ustifluvents

Setting

Depth class: Very deep

Drainage class: Well or moderately well drained

Landscape position: Flood plains

Parent material: Alluvium derived from mixed sources

Slope: 0 to 5 percent

Elevation: 7,100 to 8,500 feet

Mean annual precipitation: 18 to 20 inches

Mean annual temperature: 43 to 47 degrees F

Taxonomic Class

Ustifluvents

Reference Pedon

Ustifluvents in an area of Endoaquolls-Ustifluvents complex, 0 to 5 percent slopes, from the adjoining Animas-Dolores Area, Colorado, Soil Survey; located in the northwest quarter of the southeast quarter of sec. 2, T. 38 N., R. 14 W.

A—0 to 6 inches; reddish brown (5YR 5/3) loam, dark reddish brown (5YR 3/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common medium and fine roots; neutral (pH 7.0); clear smooth boundary.

AC—6 to 17 inches; yellowish red (5YR 5/6) and reddish gray (5YR 5/2) loam stratified with fine sandy loam; reddish brown (5YR 4/3) moist; moderate medium granular structure; soft, very friable, nonsticky, and nonplastic; common medium and fine roots; neutral (pH 7.0); clear smooth boundary.

C1—17 to 24 inches; reddish brown (5YR 5/3) and light reddish brown (5YR 6/3) stratified sandy loam and loam, reddish brown (5YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky, and nonplastic; common medium and fine roots; common large pores; neutral (pH 7.0); clear smooth boundary.

C2—24 to 30 inches; reddish gray (5YR 5/2) and light reddish brown (5YR 6/3) stratified loam and fine sandy loam, dark reddish gray (5YR 4/2) moist; common medium distinct (10YR 4/4) iron masses; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common medium roots; neutral (pH 7.0); clear smooth boundary.

2C—30 to 60 inches; stratified sand, gravel, and cobbles.

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to water table: 40 to 60 inches

A horizon:

Hue—2.5YR to 10YR

Clay content—10 to 27 percent

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—slightly acid or neutral

C horizon:

Hue—2.5YR to 10YR

Texture, fine earth fraction—stratified loam, sandy loam, fine sandy loam, or loamy sand

Clay content—3 to 25 percent

Rock fragment content—60 to 90 percent
 Predominant rock fragment size—gravel
 Reaction—slightly acid or neutral

2C horizon:

Hue—2.5YR to 10YR
 Texture, fine earth fraction—stratified loam,
 sandy loam, fine sandy loam, or loamy sand
 Clay content—3 to 25 percent
 Rock fragment content—60 to 90 percent
 Predominant rock fragment size—gravel and
 cobbles
 Reaction—slightly acid or neutral

Typical pedon is shared with the Animas-Dolores
 Area, Colorado, Soil Survey to facilitate joining.

Ustorthents

Setting

Depth class: Shallow to very deep
Drainage class: Well or somewhat excessively
 drained
Landscape position: Terrace escarpments, terraces,
 and hills
Parent material: Alluvium, residuum, and eolian
 material derived from mixed sources
Slope: 12 to 65 percent
Elevation: 6,200 to 7,400 feet
Mean annual precipitation: 13 to 16 inches
Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Ustorthents

Reference Pedon

Ustorthents, 12 to 65 percent slopes, about 800 feet
 east and 1,700 feet south of the northwest corner of
 sec. 32, T. 36 N., R. 13 W.

- A—0 to 3 inches; brown (7.5YR 5/2) very cobbly
 loam, dark brown (7.5YR 4/2) moist; weak
 medium granular structure; soft, very friable,
 nonsticky and nonplastic; many very fine and fine
 roots; 25 percent gravel, 25 percent cobbles, and
 5 percent stones; neutral (pH 7.2); clear wavy
 boundary.
- AC—3 to 14 inches; brown (7.5YR 5/4) very cobbly
 loam, dark brown (7.5YR 4/3) moist; weak
 medium subangular blocky structure parting to
 moderate medium granular; soft, very friable,
 slightly sticky and slightly plastic; many very fine
 and fine roots; 15 percent gravel, 25 percent

cobbles, and 10 percent stones; neutral (pH 7.3);
 clear wavy boundary.

- C1—14 to 36 inches; brown (7.5YR 5/4) extremely
 cobbly loam, dark brown (7.5YR 4/3) moist; weak
 medium subangular blocky structure parting to
 moderate medium granular; soft, very friable,
 slightly sticky and slightly plastic; many very fine
 and fine roots; 25 percent gravel, 35 percent
 cobbles, and 10 percent stones; neutral (pH 7.3);
 clear wavy boundary.
- C2—36 to 60 inches; brown (7.5YR 5/2) very stony
 sandy loam, brown (7.5YR 5/2) moist; massive;
 soft, very friable, slightly sticky and slightly
 plastic; common fine and very fine roots; 30
 percent gravel, 5 percent cobbles, and 20
 percent stones; slightly effervescent; slightly
 alkaline (pH 7.8); abrupt wavy boundary.

Range in Characteristics

Depth to bedrock: 10 to more than 60 inches
Depth to carbonates: 0 to more than 60 inches
Rock fragment content: 0 to 80 percent
Predominant rock fragment size: gravel, cobbles, and
 stones

A horizon:

Hue—7.5YR to 10YR
 Value—4 to 6 dry, 3 to 5 moist
 Chroma—2 to 6
 Clay content—8 to 20 percent
 Reaction—neutral to moderately alkaline

C horizon:

Hue—7.5YR to 10YR
 Value—4 to 7 dry, 3 to 7 moist
 Chroma—2 to 6
 Texture, fine earth fraction—sandy loam, loam, or
 clay loam
 Clay content—8 to 35 percent
 Reaction—neutral to moderately alkaline

Uzacol Series

Setting

Depth class: Deep
Drainage class: Well drained
Landscape position: Hills
Parent material: Slope alluvium over residuum
 derived from Morrison Shale
Slope: 3 to 9 percent
Elevation: 5,000 to 5,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual temperature: 52 to 56 degrees F

Taxonomic Class

Fine, smectitic, mesic Vertic Natrargids

Typical Pedon

Uzacol clay loam in an area of Uzacol-Zwicker-Claysprings complex, 3 to 12 percent slopes, about 400 feet south and 1,800 feet west of the northeast corner of sec. 27, T. 36 N., R. 19 W.

- A1—0 to 1 inch; light brown (7.5YR 6/4) clay loam with about 1 percent stones on the surface, brown (5YR 5/3) moist; moderate medium granular structure; slightly hard, friable, moderately sticky and moderately plastic; 5 percent gravel and 1 percent stones; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
- A2—1 to 5 inches; light brown (7.5YR 6/4) clay loam, brown (5YR 5/3) moist; weak thick platy structure parting to moderate medium granular; slightly hard, firm, moderately sticky and moderately plastic; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
- Btn1—5 to 16 inches; light brown (7.5YR 6/4) clay, brown (5YR 5/4) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky and angular blocky; very hard, very firm, very sticky and moderately plastic; common faint clay films on the faces of peds and in pores; strongly effervescent; strongly alkaline (pH 9.0); gradual smooth boundary.
- Btn2—16 to 26 inches; light brown (7.5YR 6/4) clay, reddish brown (5YR 5/4) moist; moderate medium subangular blocky structure; hard, very firm, very sticky and moderately plastic; common faint clay films on the faces of peds and in pores; strongly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.
- Btn3—26 to 31 inches; light brown (7.5YR 6/4) clay, reddish brown (5YR 5/4) moist; weak to moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common faint clay films on the faces of peds and in pores; strongly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.
- Bkn—31 to 45 inches; light reddish brown (5YR 6/4) clay, light reddish brown (5YR 6/3) moist; weak to moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; 10 percent gravel; few fine soft masses of calcium carbonate; violently effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.
- Bky—45 to 59 inches; pink (5YR 7/4) clay, brown

(7.5YR 5/4) moist; weak medium subangular blocky structure parting to weak fine subangular blocky; hard, firm, moderately sticky and moderately plastic; 10 percent gravel, many fine soft masses of gypsum and calcium carbonate; violently effervescent; moderately alkaline (pH 8.2).

Cr—59 inches; soft Morrison Shale.

Range in Characteristics

Depth to bedrock: 40 to 60 inches

Depth to carbonates: 20 to 40 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel

A horizon:

Hue—5YR or 7.5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4

Clay content—27 to 35 percent

Reaction—slightly or moderately alkaline

B horizon:

Hue—5YR or 7.5YR

Value—5 to 7 dry, 5 or 6 moist

Chroma—3 to 6

Texture, fine earth fraction—clay loam, silty clay loam, or clay

Clay content—35 to 50 percent

Reaction—moderately or strongly alkaline

Wauquie Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Canyons, hills, benches, and alluvial fans

Parent material: Colluvium and alluvium derived from sandstone and shale

Slope: 6 to 50 percent

Elevation: 6,200 to 7,400 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Loamy-skeletal, mixed, superactive, mesic Aridic Haplustalfs

Typical Pedon

Wauquie stony fine sandy loam in an area of Wauquie-Dolcan-Rock outcrop complex, 25 to 80 percent slopes, about 1,000 feet north and 900 feet

west of the southeast corner of sec. 22, T. 41 N., R. 18 W.

A1—0 to 2 inches; brown (7.5YR 4/3) stony fine sandy loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; loose, very friable, nonsticky and nonplastic; 15 percent gravel, 8 percent cobbles, 5 percent stones, and 2 percent boulders; neutral (pH 7.2); abrupt smooth boundary.

A2—2 to 6 inches; brown (7.5YR 4/4) very cobbly loam, brown (7.5YR 4/4) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; common medium roots throughout; very slightly effervescent; 20 percent gravel, 15 percent cobbles, 10 percent stones, and 2 percent boulders; slightly alkaline (pH 7.4); clear smooth boundary.

Bt1—6 to 11 inches; brown (7.5YR 5/4) very cobbly loam, dark brown (7.5YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and medium roots throughout; common fine tubular pores; common distinct discontinuous clay films on faces of peds; slightly effervescent; 20 percent gravel, 15 percent cobbles, 10 percent stones, and 2 percent boulders; slightly alkaline (pH 7.4); gradual smooth boundary.

Bt2—11 to 22 inches; brown (7.5YR 5/4) very cobbly loam, brown (7.5YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and medium roots throughout; common fine tubular pores; common distinct discontinuous clay films on faces of peds and in pores; common fine irregular soft masses of carbonate; strongly effervescent; 20 percent gravel, 20 percent cobbles, 15 percent stones, and 2 percent boulders; slightly alkaline (pH 7.6); gradual wavy boundary.

Bk1—22 to 31 inches; brown (7.5YR 5/4) very cobbly loam, brown (7.5YR 4/4) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; common medium, very fine, and coarse roots throughout; common fine tubular pores; common fine irregular soft masses of carbonate; strongly effervescent; 20 percent gravel, 20 percent cobbles, 15 percent stones, and 2 percent boulders; slightly alkaline (pH 7.6); gradual wavy boundary.

Bk2—31 to 60 inches; brown (7.5YR 5/4) very cobbly loam, brown (7.5YR 4/4) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; common very fine, medium, coarse roots throughout; common fine tubular pores; strongly effervescent; 20 percent gravel, 20 percent cobbles, 15 percent stones, and 2 percent boulders; slightly alkaline (pH 7.8).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 10 to 40 inches

Rock fragment content: 35 to 70 percent

Predominant rock fragment size: gravel, cobbles, and stones

A horizon:

Hue—7.5YR

Value—3 to 5 dry, 2 to 4 moist

Chroma—2 to 4

Texture, fine earth fraction—fine sandy loam or loam

Clay content—10 to 27 percent

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 6

Texture, fine earth fraction—loam or clay loam

Clay content—18 to 35 percent

Reaction—slightly or moderately alkaline

Bk horizon:

Hue—7.5YR

Value—5 to 7 dry, 4 to 6 moist

Chroma—4 to 6

Clay content—15 to 35 percent

Reaction—slightly or moderately alkaline

Wetherill Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Mesas and hills

Parent material: Eolian material derived from sandstone

Slope: 1 to 12 percent

Elevation: 6,200 to 7,400 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine-silty, mixed, superactive, mesic Aridic
Haplustalfs

Typical Pedon

Wetherill loam, 3 to 6 percent slopes, about 1,450 feet east and 620 feet north of the southwest corner of sec. 36, T. 38 N., R. 19 W. (fig. 10)

A1—0 to 1 inch; yellowish red (5YR 4/6) loam, dark reddish brown (5YR 3/4) moist; vesicular crust breaking to single grain; soft, very friable, nonsticky and nonplastic; slightly alkaline (pH 7.8); abrupt smooth boundary.

A2—1 to 3 inches; yellowish red (5YR 4/6) loam, dark reddish brown (5YR 3/4) moist; moderate thick platy structure parting to moderate medium platy; slightly hard, very friable, slightly sticky and slightly plastic; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bt—3 to 7 inches; yellowish red (5YR 4/6) loam, dark reddish brown (5YR 3/4) moist; moderate coarse prismatic structure parting moderate medium subangular blocky; very hard, friable, moderately sticky and moderately plastic; common faint clay films on faces of peds; common medium soft masses of calcium carbonate; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Btk1—7 to 19 inches; yellowish red (5YR 4/6) loam, dark reddish brown (5YR 3/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, firm, moderately sticky and moderately plastic; many distinct clay films on faces of peds; common medium soft masses of calcium carbonate; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Btk2—19 to 31 inches; yellowish red (5YR 4/6) loam, dark reddish brown (5YR 3/4) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm, moderately sticky and moderately plastic; many distinct clay films on faces of peds; common medium soft seams of calcium carbonate; slightly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Btk3—31 to 48 inches; yellowish red (5YR 4/6) clay loam, dark reddish brown (5YR 3/4) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; very hard,

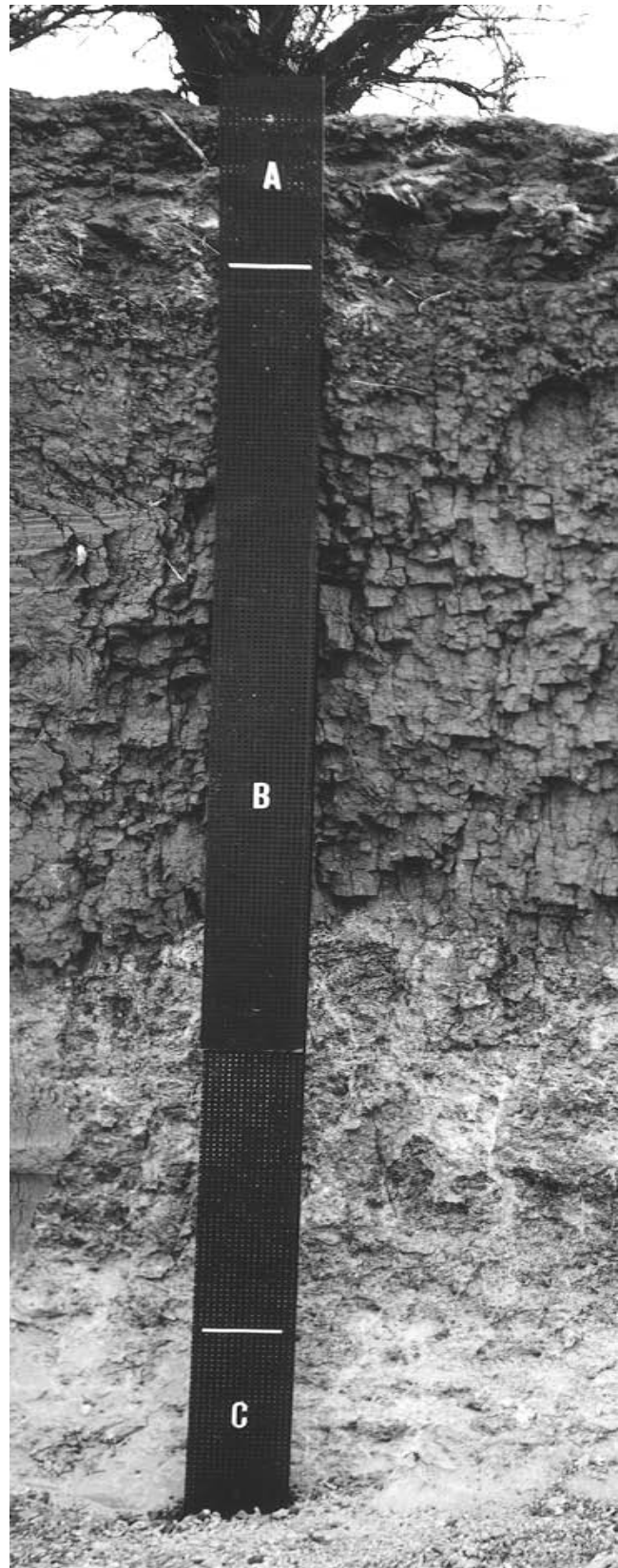


Fig. 10.—Typical profile of Wetherill loam, 3 to 6 percent slopes, with calcic horizon beginning at 42 inches.

firm, moderately sticky and moderately plastic; many prominent clay films on faces of peds; common medium soft seams of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.2); clear irregular boundary. .

Bk—48 to 60 inches; light reddish brown (5YR 6/4) loam, light reddish brown (5YR 6/4) moist; massive; very hard, firm, slightly sticky and slightly plastic; disseminated calcium carbonate throughout; strongly effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 4 to 30 inches

Depth to calcic horizon: more than 40 inches

Rock fragment content: 0 to 3 percent

Predominant rock fragment size: gravel

A horizon:

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—4 to 6

Clay content—10 to 27 percent

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—5YR or 7.5YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—4 to 6

Texture, fine earth fraction—loam or clay loam

Clay content—20 to 35 percent

Reaction—neutral to slightly alkaline

Btk horizon:

Hue—5YR or 7.5YR

Value—5 or 6 dry

Chroma—4 to 6

Texture, fine earth fraction—loam, clay loam, or sandy clay loam

Clay content—18 to 35 percent

Calcium carbonate equivalent—5 to 10 percent

Reaction—slightly or moderately alkaline

Bk horizon:

Hue—5YR or 7.5YR

Value—5 to 8 dry, 4 to 7 moist

Chroma—2 to 6

Texture, fine earth fraction—loam or sandy clay loam

Clay content—18 to 25 percent

Calcium carbonate equivalent—15 to 30 percent

Reaction—moderately or moderately alkaline

Winner Series

Setting

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landscape position: Flood plains

Parent material: Alluvium derived from mixed sources

Slope: 0 to 2 percent

Elevation: 6,200 to 7,000 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Fine-loamy, mixed, superactive, calcareous, mesic
Cumulic Endoaquolls

Typical Pedon

Winner clay loam in an area of Umbarg-Winner-Tesajo complex, 0 to 2 percent slopes, about 1,600 feet east and 900 feet north of the southwest corner of sec. 31, T. 36 N., R. 13 W.

Azg—0 to 4 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; few fine faint yellowish brown (10YR 5/8), moist, iron masses; moderate medium granular structure; hard, firm, slightly sticky and moderately plastic; common fine filaments and soft masses of salts; 5 percent gravel; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

ACzg1—4 to 14 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; common fine prominent red (2.5YR 4/6), moist, iron masses; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many fine soft masses and filaments of salt; 5 percent gravel; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

ACzg2—14 to 23 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; common fine distinct yellowish red (5YR 5/6) moist iron masses; massive; very hard, firm, moderately sticky and moderately plastic; few fine soft masses of salts; 5 percent gravel; slightly effervescent; slightly alkaline (pH 7.5); gradual wavy boundary.

ACg—23 to 31 inches; brown (10YR 5/3) clay loam, very dark grayish brown (10YR 3/2) moist; few

fine faint yellowish red (5YR 5/6), moist, iron masses; massive; very hard, firm, moderately sticky and moderately plastic; 5 percent gravel; slightly effervescent; slightly alkaline (pH 7.5); clear wavy boundary.

2Cg—31 to 60 inches; brown (10YR 5/3) very stony sandy clay loam, brown (10YR 4/3) moist; few fine faint yellowish brown (10YR 5/6), moist, iron masses; massive; hard, friable, moderately sticky and moderately plastic; 15 percent gravel, 15 percent cobbles, and 30 percent stones; slightly effervescent; slightly alkaline (pH 7.5).

Range in Characteristics

Thickness of the mollic epipedon: 24 to 50 inches

Depth to bedrock: more than 60 inches

Depth to carbonates: 0 to 20 inches

Depth to water table: 6 to 20 inches

A horizon:

Hue—10YR

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2

Clay content—27 to 35 percent

Rock fragment content—0 to 10 percent

Predominant rock fragment size—gravel

Reaction—slightly or moderately alkaline

2C horizon:

Hue—10YR

Value—4 to 6 dry, 2 to 4 moist

Chroma—2 or 3

Clay content—20 to 35 percent

Rock fragment content—35 to 60 percent

Predominant rock fragment size—gravel, cobbles, and stones

Reaction—slightly or moderately alkaline

Yarts Series

Setting

Depth class: Very deep

Drainage class: Well drained

Landscape position: Alluvial fans and terraces

Parent material: Alluvium derived from sandstone and shale

Slope: 1 to 6 percent

Elevation: 5,400 to 6,200 feet

Mean annual precipitation: 10 to 13 inches

Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents

Typical Pedon

Yarts clay loam, 1 to 6 percent slopes, about 320 feet west and 540 feet south of the northeast corner of sec. 33, T. 36 N., R. 18 W.

Ap—0 to 9 inches; reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/3) moist; massive; hard, very firm, moderately sticky and moderately plastic; strongly effervescent; slightly alkaline; abrupt smooth boundary.

AC—9 to 13 inches; reddish brown (5YR 5/4) sandy loam, reddish brown 5YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; strongly effervescent; moderately alkaline; clear wavy boundary.

C—13 to 60 inches; yellowish red (5YR 5/6) sandy loam, yellowish red (5YR 4/6) moist; massive; slightly hard, very friable, nonsticky and nonplastic; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to bedrock: more than 60 inches

Depth to carbonates: 0 to 5 inches

Rock fragment content: 0 to 15 percent

Predominant rock fragment size: gravel, cobbles, and stones

A horizon:

Hue—5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture, fine earth fraction—fine sandy loam or clay loam

Reaction—slightly or moderately alkaline

C horizon:

Hue—5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 to 8

Texture, fine earth fraction—sandy loam or fine sandy loam

Clay content—8 to 18 percent

Reaction—slightly to strongly alkaline

Zau Series

Setting

Depth class: Moderately deep

Drainage class: Well drained

Landscape position: Hills

Parent material: Residuum derived from sandstone and shale

Slope: 9 to 25 percent

Elevation: 7,600 to 8,000 feet

Mean annual precipitation: 18 to 22 inches

Mean annual temperature: 40 to 44 degrees F

Taxonomic Class

Fine, mixed, superactive, frigid Typic Argiustolls

Typical Pedon

Zau stony loam, 9 to 25 percent slopes, from the adjoining La Plata County Area, Colorado, Soil Survey; about 175 feet east and 190 feet south of the northwest corner of sec. 22, T. 35 N., R. 11 W.

2-inch thick layer of undecomposed leaves and bark.

Oe—0 to 2 inches; moderately decomposed plant material.

A1—2 to 10 inches; dark grayish brown (10YR 3/2) stony loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many medium and fine roots throughout; common fine discontinuous tubular pores; 5 percent gravel and 2 percent stones and cobbles; neutral (pH 7.2); clear smooth boundary.

A2—10 to 15 inches; brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many medium and fine roots throughout; few fine discontinuous tubular pores; 5 percent gravel; neutral (pH 7.2); gradual wavy boundary.

Bt1—15 to 19 inches; brown (10YR 5/3) and light yellowish brown (10YR 6/4) clay loam, brown (10YR 4/3) and yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure parting to moderate medium granular; hard, firm, slightly sticky and slightly plastic; faint nearly continuous clay films on faces of peds; few fine roots throughout; few fine discontinuous tubular pores; 5 percent gravel; neutral (pH 7.0); gradual wavy boundary.

Bt2—19 to 29 inches; brown (10YR 5/3) and brownish yellow (10YR 6/6) clay, brown (10YR 4/3) and yellowish brown (10YR 5/6) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, very sticky and moderately plastic; faint nearly continuous clay films on faces of peds; few very fine roots throughout; few very fine discontinuous tubular pores; 5 percent gravel; neutral (pH 6.8); clear smooth boundary.

C—29 to 34 inches; brown (10YR 5/3) and brownish yellow (10YR 6/6) clay loam, brown (10YR 4/3)

and yellowish brown (10YR 5/6) moist; massive; slightly hard friable, moderately sticky and moderately plastic; few very fine roots throughout; 15 percent gravel; neutral (pH 7.2); clear smooth boundary.

Cr—34 inches; weathered sandstone.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 16 inches

Depth to bedrock: 20 to 40 inches

Rock fragment content: 5 to 35 percent

Predominant rock fragment size: gravel

A horizon:

Hue—7.5YR or 10YR

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3

Clay content—15 to 27 percent

Reaction—neutral or slightly alkaline

Bt horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 to 5

Texture, fine earth fraction—clay loam or clay

Clay content—35 to 45 percent

Reaction—slightly acid or neutral

C horizon:

Hue—7.5YR to 2.5Y

Texture, fine earth fraction—clay loam or sandy clay loam

Clay content—27 to 35 percent

Reaction—slightly acid to slightly alkaline

Typical pedon is shared with the La Plata County Area, Colorado, Soil Survey to facilitate joining.

Zigzag Series

Setting

Depth class: Very shallow and shallow

Drainage class: Well drained

Landscape position: Ridges, knobs, and hills

Parent material: Residuum derived from Mancos Shale

Slope: 3 to 65 percent

Elevation: 6,200 to 7,400 feet

Mean annual precipitation: 13 to 16 inches

Mean annual temperature: 46 to 50 degrees F

Taxonomic Class

Clayey, smectitic, calcareous, mesic, shallow Aridic Ustorthents

Typical Pedon

Zigzag very channery clay loam in an area of Sideshow-Zigzag complex, 3 to 25 percent slopes, 1,800 feet south and 1,050 feet west of the northeast corner, sec. 25, T. 36 N., R. 15 W.

A1—0 to 1 inch; light brownish gray (10YR 6/2) very channery clay loam, brown (10YR 4/3) moist; strong fine granular structure; soft, very friable, moderately sticky and moderately plastic; violently effervescent throughout; 15 percent gravel, 40 percent channers, and 1 percent stones; moderately alkaline (pH 8.2); abrupt smooth boundary. A2—1 to 5 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; strong fine granular structure; soft, very friable, moderately sticky and moderately plastic; violently effervescent throughout; 10 percent gravel and 2 percent channers; moderately alkaline (pH 8.2); abrupt wavy boundary.

C1—5 to 14 inches; light brownish gray (10YR 6/2) clay, grayish brown (10YR 5/2) moist; moderate medium prismatic structure parting to weak coarse subangular blocky; very hard, very firm, very sticky and very plastic; violently effervescent throughout; moderately alkaline (pH 8.2); abrupt wavy boundary.

C2—14 to 19 inches; light brownish gray (10YR 6/2) clay, brown (10YR 5/3) moist; massive; very hard, very firm, very sticky and very plastic; strongly effervescent throughout; moderately alkaline (pH 8.4); abrupt wavy boundary.

Cr—19 inches; soft Mancos Shale.

Range in Characteristics

Depth to bedrock: 6 to 20 inches

Depth to carbonates: 0 to 3 inches

A horizon:

Hue—10YR to 5Y to

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 to 4

Clay content—27 to 40 percent

Rock fragment content—0 to 50 percent

Predominant rock fragment size—gravel and channers

Reaction—slightly or moderately alkaline

C horizon:

Hue—10YR to 5Y

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 4

Texture, fine earth fraction—clay loam, clay, silty clay loam, or silty clay

Clay content—35 to 55 percent

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—slightly or moderately alkaline

Zwicker Series

Setting

Depth class: Moderately deep

Drainage class: Well drained

Landscape position: Hills, knobs, and ridges

Parent material: Slope alluvium and colluvium derived from Morrison Shale

Slope: 3 to 12 percent

Elevation: 5,000 to 5,700 feet

Mean annual precipitation: 8 to 10 inches

Mean annual temperature: 52 to 56 degrees F

Taxonomic Class

Fine, smectitic, mesic Chromic Haplotorrerts

Typical Pedon

Zwicker stony clay loam in an area of Uzacol-Zwicker-Claysprings complex, 3 to 12 percent slopes, 300 feet west and 900 feet south of the northeast corner of sec. 28, T. 36 N., R. 19 W.

A1—0 to 1 inch; light brown (7.5YR 6/4) stony clay loam, brown (7.5YR 5/4) moist; moderate very fine granular structure; soft, very friable, moderately sticky and moderately plastic; strongly effervescent; 2 percent gravel, 10 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.4); clear smooth boundary.

A2—1 to 4 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 5/4) moist; weak medium platy structure parting to moderate fine granular; soft, very friable, moderately sticky and moderately plastic; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bss—4 to 10 inches; light brown (7.5YR 6/4) clay, brown (7.5YR 5/4) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; strongly effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Bssky—10 to 17 inches; light brown (7.5YR 6/4) clay,

brown (7.5YR 5/4) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm, moderately sticky and moderately plastic; few fine irregular seams and soft masses of calcium carbonate; many fine gypsum crystals; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Cky—17 to 32 inches; light brown (7.5YR 6/4) clay, brown (7.5YR 5/4) moist; massive; extremely hard, very firm, moderately sticky and moderately plastic; many fine seams and soft masses of calcium carbonate; many fine gypsum crystals; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Cr—32 inches; soft Morrison Shale.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

Depth to carbonates: 0 inches

A horizon:

Hue—5YR to 10YR

Value—5 to 7 dry, 3 to 6 moist

Chroma—3 or 4

Clay content—27 to 40 percent

Rock fragment content: 0 to 20 percent

Predominant rock fragment size—gravel, cobbles, and stones

Reaction—slightly to strongly alkaline

B horizon:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 3 to 6 moist

Chroma—3 or 4

Texture, fine earth fraction—clay or clay loam

Clay content—35 to 60 percent

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—slightly to strongly alkaline

Zyme Series

Setting

Depth class: Very shallow and shallow

Drainage class: Well drained

Landscape position: Ridges, knobs, and hills

Parent material: Residium derived from Mancos Shale

Slope: 3 to 65 percent

Elevation: 5,800 to 6,200 feet

Mean annual precipitation: 11 to 13 inches

Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Clayey, smectitic, calcareous, mesic, shallow Ustic Torriorthents

Typical Pedon

Zyme very channery clay loam, 12 to 65 percent slopes, about 370 feet west and 2,557 feet north of the southeast corner of sec. 24, T. 35 N., R. 17 W.

A—0 to 2 inches; brown (10YR 5/3) very channery clay loam, brown (10YR 4/3) moist; weak fine granular structure; hard, firm, moderately sticky and moderately plastic; strongly effervescent; 30 percent channers and 5 percent flags; moderately alkaline (pH 8.0); clear smooth boundary.

C—2 to 12 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; massive; very hard, firm, very sticky and moderately plastic; strongly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Cr—12 inches; Mancos Shale with variegated colors.

Range in Characteristics

Depth to bedrock: 6 to 20 inches

Depth to carbonates: 0 to 3 inches

A horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 to 4

Clay content—27 to 40 percent

Rock fragment content—15 to 60 percent

Predominant rock fragment size—channers and flags

Reaction—slightly or moderately alkaline

C horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 4

Texture, fine earth fraction—clay, clay loam, silty clay, or silty clay loam

Clay content—35 to 45 percent

Rock fragment content—0 to 35 percent

Predominant rock fragment size—gravel

Reaction—slightly or moderately alkaline

Formation of Soils

Soil, in its traditional meaning, is the natural medium for the growth of land plants. The characteristics of this medium are determined by the interaction of five factors of soil formation—the *climate* under which the soil material accumulated and weathered; the *topography* or lay of the land; the *plant and animal* life that is on and in the soil material; the *time* that these activities have acted upon the material; and the physical and mineralogical composition of the *parent material*.

Climate and plant and animal life are the active factors of soil formation. They act on the parent material that has accumulated through the weathering of rock or that has been deposited by wind and water. They slowly change this material into a natural body that has genetically related horizons. The effects of climate and plant and animal life are conditions of topography. The kind of parent material also affects the kind of profile that is formed or, in extreme cases, determines it almost entirely. Finally, time is needed to change the parent material into a soil that has distinct horizons.

The factors of soil formation are so closely interrelated in their influence on the soil that few generalizations can be made regarding the affects of any one factor unless the conditions are specified for the other four. The factors of soil formation are not equal in their affect on soil formation, nor is any one factor equal under different conditions. In some places, any one factor may have a major influence on soil formation, while in another place it may be of little importance. The five factors of soil formation along with the geology of the area are discussed in the following paragraphs.

Climate

Climate exerts a major influence on the physical and chemical weathering of the parent material and affects the amount of biological activity that takes place in and on the soil. Soil moisture and temperature are the main factors that affect the rate of soil formation; however, wind velocity and humidity play important roles in the formation of some soils.

The climate of this survey area ranges from hot,

arid continental to cold subhumid mountain. The warmest and driest part of the survey area occurs in the southwest corner, along McElmo and Yellowjacket Creeks. To the northeast, as the land steadily gains in elevation, precipitation increases and the temperature decreases. Where McElmo Creek enters Utah, the elevation is 4,900 feet; mean annual precipitation is about 9 inches; and average annual air temperature is 54 F. Cortez, at an elevation of 6,200 feet, has a mean annual precipitation of 13 inches and average annual air temperature of 48 F. Dolores, along the northeastern edge of the survey at an elevation of 7,000 feet, has a mean annual precipitation of 18 inches and average annual air temperature of 46 F. This gradual increase in precipitation and decrease in temperature affects the process of soil formation.

Soil moisture affects soil formation as it moves down through the soil, leaching calcium carbonate and soluble salts from the upper horizons and depositing them in the lower horizons. This water movement can also transport fine clay particles downward through the soil profile, depositing them to develop argillic horizons. The formative effect of precipitation is illustrated by comparing differences among local soils of similar parent material and age. The Mack soil developed in an area of low precipitation; it has a weakly developed argillic horizon and high calcium carbonate content throughout. In the mid-elevation and precipitation range, the Wetherill soil exhibits greater development: this soil contains a well developed argillic horizon, upper horizons that have been leached of calcium carbonate, and strong accumulations of calcium carbonate in the lower, calcic horizon. In the highest elevation and precipitation zones, the Granath soil has been leached free of calcium carbonate throughout the profile, clay movement is deeper, and the argillic horizon is thicker and more developed.

The climate also indirectly influences soil formation by influencing the amount and type of vegetation that occurs in an area; this directly relates to the type and amount of organic material that is returned to the soil. In the drier parts of the survey area where soil moisture is limited, plant growth is

also limited, resulting in small amounts of organic material returned to the soil; consequently, soils such as Mack, Claysprings, and Ruinpoint are relatively low in organic matter. In areas of higher precipitation, soils support dense stands of grass and shrubs, and have corresponding increases in soil organic matter. Soils such as Granath, Collide, and Tragmon have sufficient quantities of organic material to produce dark, organic-rich mollic surface layers.

Topography

Topography influences soil formation primarily through associated water and temperature relations; it also influences the deposit or removal of parent material. This survey area has an extremely varied topography, ranging from nearly level flood plains along the Dolores River and mesa tops to steep mesa and canyon sideslopes (fig. 11).

Topography affects the soil moisture state by influencing runoff and infiltration. On nearly level areas, soil runoff is minimal and moisture infiltrates into the soil to a greater depth and thus promotes plant growth; the Umbarg soil is an example. Areas of steeper slopes lose much of their precipitation to runoff and thus have decreased soil moisture for plant growth and soil formation. The Romberg soil, which occurs on the steep canyon sideslopes, is an example of this topographical influence. Topography

can also affect soil drainage. Mikett soils in nearly level drainageways are influenced by additions of water by runoff from steeper areas, resulting in a seasonal high water table that affects the soil-forming processes. Oxidation and reduction processes, which take place alternately in these soils, result in chemical and biologic changes.

Topography can have a major influence on the degree of deposition, erosion, and stability of the parent material. In many areas, such as those along streams and at the base of steeper areas, soil material accumulates and develops into very deep soils. Prater, Hesperus, and Sheek soils are examples of soils that form in depositional positions. Soils that form on steep ridges and canyon sideslopes tend to be shallow and lose soil material at a rate equal to soil formation. Crosscan, Dolcan, and Zigzag soils are examples of shallow soils that form on steep, erosional slopes.

Aspect has a major influence on soil formation in this survey area. Aspect and steepness of slope influence soil formation by their effects on the microclimate of the area. Southern aspects are warmer and drier than a site of similar elevation and climate with a northern aspect. This feature can be noted in the major canyons of the survey area. South-facing areas have sparser vegetation and less organic matter than the north-facing slopes. North-facing areas retain snow longer in the winter and into

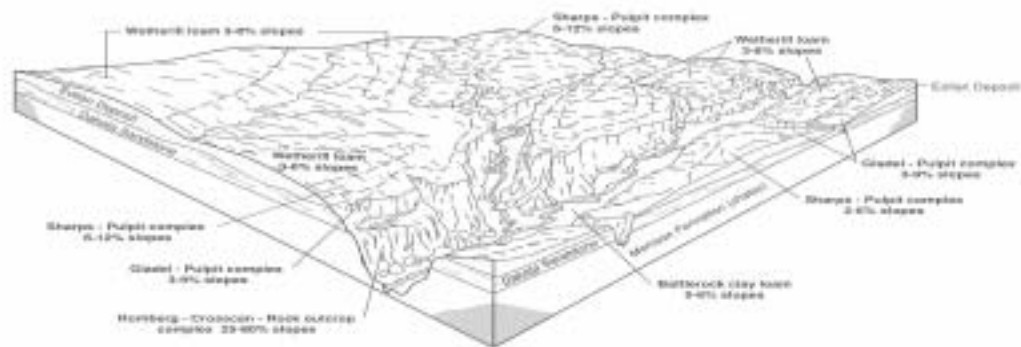


Fig 11.—Block diagram of the typical soils and their landscape positions found in the Cortez Soil Survey Area.

brown (7.5YR 5/4) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm, moderately sticky and moderately plastic; few fine irregular seams and soft masses of calcium carbonate; many fine gypsum crystals; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Cky—17 to 32 inches; light brown (7.5YR 6/4) clay, brown (7.5YR 5/4) moist; massive; extremely hard, very firm, moderately sticky and moderately plastic; many fine seams and soft masses of calcium carbonate; many fine gypsum crystals; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Cr—32 inches; soft Morrison Shale.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

Depth to carbonates: 0 inches

A horizon:

Hue—5YR to 10YR

Value—5 to 7 dry, 3 to 6 moist

Chroma—3 or 4

Clay content—27 to 40 percent

Rock fragment content: 0 to 20 percent

Predominant rock fragment size—gravel, cobbles, and stones

Reaction—slightly to strongly alkaline

B horizon:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 3 to 6 moist

Chroma—3 or 4

Texture, fine earth fraction—clay or clay loam

Clay content—35 to 60 percent

Rock fragment content—0 to 15 percent

Predominant rock fragment size—gravel

Reaction—slightly to strongly alkaline

Zyme Series

Setting

Depth class: Very shallow and shallow

Drainage class: Well drained

Landscape position: Ridges, knobs, and hills

Parent material: Residuum derived from Mancos Shale

Slope: 3 to 65 percent

Elevation: 5,800 to 6,200 feet

Mean annual precipitation: 11 to 13 inches

Mean annual temperature: 50 to 52 degrees F

Taxonomic Class

Clayey, smectitic, calcareous, mesic, shallow Ustic Torriorthents

Typical Pedon

Zyme very channery clay loam, 12 to 65 percent slopes, about 370 feet west and 2,557 feet north of the southeast corner of sec. 24, T. 35 N., R. 17 W.

A—0 to 2 inches; brown (10YR 5/3) very channery clay loam, brown (10YR 4/3) moist; weak fine granular structure; hard, firm, moderately sticky and moderately plastic; strongly effervescent; 30 percent channers and 5 percent flags; moderately alkaline (pH 8.0); clear smooth boundary.

C—2 to 12 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; massive; very hard, firm, very sticky and moderately plastic; strongly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Cr—12 inches; Mancos Shale with variegated colors.

Range in Characteristics

Depth to bedrock: 6 to 20 inches

Depth to carbonates: 0 to 3 inches

A horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 to 4

Clay content—27 to 40 percent

Rock fragment content—15 to 60 percent

Predominant rock fragment size—channers and flags

Reaction—slightly or moderately alkaline

C horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 4

Texture, fine earth fraction—clay, clay loam, silty clay, or silty clay loam

Clay content—35 to 45 percent

Rock fragment content—0 to 35 percent

Predominant rock fragment size—gravel

Reaction—slightly or moderately alkaline

of the Dolores River consist of stratified sand, gravel, and cobbles with layers of finer textured material from mixed sources. These deposits originated in the San Juan Mountains to the northeast of the survey area, and were moved long distances by water. The Umbarg, Winner, and Tesajo soils formed in recent alluvium along the Dolores River.

Most of the major drainageways throughout the survey area have alluvial deposits associated with them; the source of these deposits is soil material which has been eroded from the surrounding hills and mesas. These soils have few coarse fragments and consist of very deep loamy and silty deposits with fine stratification. Ackmen, Lillings, and Ramper soils formed in these deposits.

Alluvial deposits weathering from the Mancos and Mesa Verde Formations east and south of Cortez were deposited as broad alluvial fans; these deposits cover vast areas with relatively uniform slopes below the escarpments of the Mesa Verde Plateau. These soils have fine to loamy textures with fine stratification. Some of the soils formed in these deposits are Mikim, Sideshow, and Mikett.

Colluvium and Slope Alluvium

These deposits develop from the movement of material resulting mainly from gravity and surface runoff. They generally are located at the base of steeper slopes and contain various amounts of angular coarse fragments from geologic formations above. Precipitation and gravity work together to move material downslope and deposit it at the bases of steeper slopes. Sheek, Tragmon, and Romberg are soils that form in these deposits.

Residuum

Many soils in this survey formed directly from material that has not been transported, but rather was weathered in place from the original geologic material. Sandstone and shale are the major geologic materials found throughout the survey area. Residual soils are normally very shallow or shallow and exhibit characteristics of the material from which they are forming. Soils that develop from shale tend to be clayey and calcareous, and to overlay soft bedrock. Zigzag and Zyme soils have developed from the Mancos Shale. Soils that develop from sandstone are normally loamy to sandy and very shallow or shallow. They may exhibit minimal horizon development or movement of calcium carbonate. The Farb, Gladel, and Falconry soils developed from Dakota Sandstone.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon.

Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone. The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Arroyo. The flat-floored channel of an ephemeral

stream, commonly with very steep to vertical banks cut in alluvium.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Bajada. A broad alluvial slope extending from the base of a mountain range out into a basin and formed by coalescence of separate alluvial fans.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na,

and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks. The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte. An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche. A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds directly beneath

the solum, or it is exposed at the surface by erosion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a chanter.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant

community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses

and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coppice dune. A small dune of fine grained soil material stabilized around shrubs or small trees.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cuesta. A hill or ridge that has a gentle slope on one side and a steep slope on the other; specifically, an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Desert pavement. On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained*, *somewhat excessively drained*, *well drained*, *moderately well drained*, *somewhat poorly drained*, *poorly drained*, and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost

material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess lime (in tables). Excess carbonates in the soil that restrict the growth of some plants.

Excess salts (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Excess sodium (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited

rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In

profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey

and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected

by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the

soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat} . Saturated hydraulic conductivity. (See Permeability.)

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $\frac{1}{3}$ - or $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Lithic. Hard bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion

until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mesa. A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size

measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

Paralithic. Soft bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Percolates slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth).

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features

indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Runoff Ratings (in tables).

Slope	Permeability					
	Very Rapid	Rapid	Mod Rapid	Mod.	Mod. Slow	Slow
1-3	Neg.	V. Low	Low	Low	Med.	Med.
3-6	Neg.	V. Low	Low	Med.	Med.	High
6-12	V. Low	Low	Med.	High	High	V. High
12-25	V. Low	Low	Med.	High	V. High	V. High
25+	Low	Med	High	V. High	V. High	V.High

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost

inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 1 percent
Gently sloping	1 to 3 percent
Moderately sloping	3 to 6 percent
Strongly sloping	6 to 12 percent
Moderately steep	12 to 25 percent
Steep	25 to 45 percent
Very steep	45 percent and higher

Classes for complex slopes are as follows:

Nearly level	0 to 1 percent
Undulating	1 to 3 percent
Gently rolling	3 to 6 percent
Rolling	6 to 12 percent
Hilly	12 to 25 percent
Steep	25 to 45 percent
Very steep	45 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slope alluvium Soil material and rock fragments, gradually transported on hill slopes primarily by alluvial processes.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to $\text{Ca}^{++} + \text{Mg}^{++}$. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the

next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Too arid (in tables). The soil is dry most of the time, and vegetation is difficult to establish.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation
(Recorded in the period 1961-90 at Cortez, CO1886)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	39.5	11.5	25.5	56	-15	1	0.90	0.36	1.42	3	7.3
February-----	45.1	17.8	31.4	62	-9	12	0.91	0.40	1.46	3	5.9
March-----	52.2	24.3	38.2	71	4	68	1.38	0.34	2.21	4	6.1
April-----	61.7	30.2	45.9	78	15	206	0.87	0.27	1.36	2	1.1
May-----	71.8	38.2	55.0	85	22	466	0.89	0.34	1.42	2	0.1
June-----	82.7	46.4	64.5	96	31	731	0.45	0.10	0.86	1	0.0
July-----	88.1	54.5	71.3	97	42	962	1.17	0.46	1.77	3	0.0
August-----	85.4	53.1	69.2	95	41	905	1.52	0.60	2.29	4	0.0
September---	77.5	44.4	61.0	89	28	620	1.28	0.68	1.99	3	0.1
October-----	66.3	33.7	50.0	81	17	317	1.52	0.50	2.46	3	0.2
November-----	52.0	23.8	37.9	69	4	61	1.19	0.60	1.78	3	2.5
December-----	41.5	14.7	28.1	58	-11	3	1.22	0.58	1.84	3	8.1
Yearly:											
Average---	63.6	32.7	48.2	---	---	---	---	---	---	---	---
Extreme---	101	-27	---	99	-18	---	---	---	---	---	---
Total-----	---	---	---	---	---	4353	13.31	9.50	15.81	34	31.3

Table 1.--Temperature and Precipitation--Continued
 (Recorded in the period 1961-90 at Mesa Verde National Park, CO5531)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	39.0	17.7	28.4	55	-5	3	1.64	0.56	2.52	4	17.9
February-----	43.6	21.9	32.8	61	-1	17	1.41	0.47	2.27	3	14.2
March-----	49.6	26.6	38.1	69	8	75	1.87	0.61	2.91	5	17.7
April-----	59.3	33.0	46.2	76	16	220	1.14	0.58	1.71	3	5.6
May-----	69.9	41.7	55.8	85	25	492	1.08	0.34	1.75	3	1.0
June-----	81.3	50.9	66.1	94	36	759	0.57	0.11	1.05	1	0.0
July-----	86.4	57.2	71.8	96	48	974	1.89	0.79	2.83	5	0.0
August-----	83.5	55.2	69.3	93	45	901	1.92	0.81	2.87	4	0.0
September---	75.7	48.3	62.0	88	32	656	1.51	0.58	2.37	3	0.1
October-----	64.3	38.5	51.4	80	20	363	1.77	0.52	2.89	3	1.7
November-----	49.4	28.0	38.7	68	7	83	1.67	0.65	2.52	3	9.0
December-----	40.1	19.8	29.9	58	-1	7	1.73	0.49	2.73	4	17.2
Yearly:											
Average---	61.9	36.6	49.2	---	---	---	---	---	---	---	---
Extreme---	100	-20	---	97	-8	---	---	---	---	---	---
Total-----	---	---	---	---	---	4550	18.20	13.91	21.94	41	84.3

Table 1.--Temperature and Precipitation--Continued
 (Recorded in the period 1961-90 at Northdale, CO5970, 2W of Dove Creek)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	36.4	7.9	22.2	52	-24	0	0.70	0.23	1.13	2	5.5
February-----	41.4	14.0	27.7	59	-18	4	0.70	0.21	1.19	2	6.4
March-----	49.0	22.2	35.6	68	-3	38	0.93	0.32	1.55	3	6.0
April-----	59.0	27.5	43.3	75	9	142	0.77	0.41	1.26	2	1.7
May-----	69.7	34.6	52.2	84	18	380	0.84	0.35	1.36	2	0.0
June-----	81.2	42.0	61.6	94	28	648	0.38	0.08	0.80	1	0.0
July-----	86.6	50.4	68.5	96	36	882	1.37	0.56	2.06	4	0.0
August-----	83.6	49.5	66.6	94	36	824	1.39	0.58	2.08	3	0.0
September---	75.8	41.0	58.4	90	24	552	1.43	0.58	2.23	3	0.0
October-----	63.9	30.7	47.3	79	13	244	1.66	0.50	2.81	3	0.8
November-----	48.6	21.0	34.8	67	-4	29	1.09	0.42	1.79	2	2.6
December-----	38.2	11.6	24.9	56	-19	1	1.04	0.29	1.70	3	6.6
Yearly:											
Average---	61.1	29.4	45.3	---	---	---	---	---	---	---	---
Extreme---	99	-33	---	97	-27	---	---	---	---	---	---
Total-----	---	---	---	---	---	3746	12.31	9.14	15.02	30	29.6

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees. F)

Table 2.--Freeze Dates in Spring and Fall
(Recorded in the period 1961-90 at Cortez, CO1886)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 9	May 24	June 11
2 years in 10 later than--	May 4	May 19	June 5
5 years in 10 later than--	April 25	May 9	May 26
First freezing temperature in fall:			
1 year in 10 earlier than--	October 6	September 24	September 13
2 years in 10 earlier than--	October 11	September 30	September 18
5 years in 10 earlier than--	October 21	October 12	September 28

Table 2.--Freeze Dates in Spring and Fall--Continued

(Recorded in the period 1961-90 at Mesa Verde
National Park, CO5531)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 2	May 18	May 27
2 years in 10 later than--	April 27	May 13	May 23
5 years in 10 later than--	April 17	May 3	May 14
First freezing temperature in fall:			
1 year in 10 earlier than--	October 16	October 1	September 23
2 years in 10 earlier than--	October 21	October 7	September 30
5 years in 10 earlier than--	November 1	October 21	October 12

Table 2.--Freeze Dates in Spring and Fall--Continued
 (Recorded in the period 1961-90 at Northdale, CO5970, 2W
 of Dove Creek)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 24	June 6	June 24
2 years in 10 later than--	May 19	June 1	June 19
5 years in 10 later than--	May 8	May 23	June 10
First freezing temperature in fall:			
1 year in 10 earlier than--	September 24	September 14	September 3
2 years in 10 earlier than--	September 30	September 19	September 8
5 years in 10 earlier than--	October 11	September 29	September 18

Table 3.--Growing Season

(Recorded for the period 1961-90 at Cortez,
CO1886)

Probability	Daily Minimum Temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	160	133	105
8 years in 10	167	141	112
5 years in 10	180	157	125
2 years in 10	193	172	138
1 year in 10	200	181	145

(Recorded for the period 1961-90 at Mesa Verde
National Park, CO5531)

9 years in 10	174	149	126
8 years in 10	182	156	134
5 years in 10	196	170	150
2 years in 10	211	183	166
1 year in 10	219	190	174

(Recorded for the period 1961-90 at Northdale,
CO5970, 2W of Dove Creek)

9 years in 10	130	105	76
8 years in 10	138	113	84
5 years in 10	154	128	99
2 years in 10	170	143	114
1 year in 10	179	151	122

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Dolores County	Montezuma County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
1	Ackmen loam, 1 to 3 percent slopes-----	2,733	2,818	5,551	0.7
2	Ackmen loam, 3 to 6 percent slopes-----	146	159	305	*
3	Arabrab loamy sand, 3 to 9 percent slopes----	---	230	230	*
4	Arabrab-Longburn complex, 3 to 15 percent slopes-----	---	4,514	4,514	0.6
5	Archuleta-Sanchez complex, 12 to 65 percent slopes-----	---	26	26	*
6	Argiustolls-Haplustalfs complex, 30 to 80 percent slopes-----	---	143	143	*
7	Argiustolls-Haplustalfs-Rock outcrop complex, 30 to 80 percent slopes-----	361	334	695	*
8	Barx loam, 3 to 6 percent slopes-----	89	3,996	4,085	0.5
9	Barx loam, 6 to 12 percent slopes-----	---	826	826	0.1
10	Barx very fine sandy loam, 1 to 4 percent slopes-----	---	842	842	0.1
11	Barx-Gapmesa complex, 2 to 6 percent slopes--	---	5,877	5,877	0.8
12	Battlerock clay loam, 0 to 6 percent slopes--	33	2,283	2,316	0.3
13	Beje-Tragmon complex, 3 to 9 percent slopes--	---	414	414	*
14	Burnson loam, 1 to 15 percent slopes-----	---	614	614	*
15	Burnson loam, dry, 1 to 15 percent slopes----	---	23	23	*
16	Burnson-Herm complex, 15 to 30 percent slopes	---	6	6	*
17	Cahona loam, 1 to 3 percent slopes-----	13	35	48	*
18	Cahona loam, 3 to 6 percent slopes-----	730	1,672	2,402	0.3
19	Cahona loam, 6 to 12 percent slopes-----	1,566	4,783	6,349	0.8
20	Cahona-Pulpit complex, 3 to 9 percent slopes-	4,566	4,581	9,147	1.2
21	Cahona-Sharpes-Wetherill complex, 2 to 6 percent slopes-----	9,222	12,811	22,033	2.8
22	Claysprings very stony clay loam, 12 to 65 percent slopes-----	---	12,477	12,477	1.6
23	Collide clay loam, 3 to 6 percent slopes-----	---	506	506	*
24	Collide clay loam, 6 to 12 percent slopes----	---	265	265	*
25	Collide complex, 0 to 2 percent slopes-----	---	730	730	*
26	Collide complex, 2 to 6 percent slopes-----	---	1,569	1,569	0.2
27	Dalmatian-Apmay-Schrader complex, 0 to 5 percent slopes-----	---	803	803	0.1
28	Dam-----	---	31	31	*
29	Endoaquolls-Ustifluvents complex, 0 to 5 percent slopes-----	---	23	23	*
30	Falconry gravelly fine sandy loam, 3 to 25 percent slopes-----	85	1,131	1,216	0.2
31	Farb-Rock outcrop complex, 3 to 12 percent slopes-----	---	8,345	8,345	1.1
32	Fardraw loam, 3 to 15 percent slopes-----	---	245	245	*
33	Fardraw very cobbly loam, 0 to 9 percent slopes-----	---	994	994	0.1
34	Fardraw very cobbly loam, 9 to 25 percent slopes-----	---	342	342	*
35	Fardraw-Granath complex, 3 to 12 percent slopes-----	---	117	117	*
36	Fivepine-Nortez complex, 0 to 15 percent slopes-----	---	389	389	*
37	Fluvaquents-Haplustolls complex, 0 to 5 percent slopes-----	80	20	100	*
38	Fluvents-Fluvaquents complex, 0 to 3 percent slopes-----	85	4,674	4,759	0.6
39	Fughes loam, 1 to 12 percent slopes-----	35	960	995	0.1
40	Fughes-Herm complex, 5 to 25 percent slopes--	---	1,110	1,110	0.1
41	Fughes-Sheek complex, 15 to 30 percent slopes	---	400	400	*
42	Gladel-Pulpit complex, 3 to 9 percent slopes-	19,515	39,135	58,650	7.5
43	Goldbug very stony fine sandy loam, 5 to 30 percent slopes-----	---	121	121	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Dolores County	Montezuma County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
44	Granath loam, 3 to 6 percent slopes-----	6,325	7,159	13,484	1.7
45	Granath loam, 6 to 12 percent slopes-----	641	2,466	3,107	0.4
46	Granath-Fughes complex, 0 to 15 percent slopes-----	---	334	334	*
47	Granath-Nortez complex, 0 to 15 percent slopes-----	---	20	20	*
48	Granath-Ormiston-Fivepine complex, 0 to 15 percent slopes-----	---	285	285	*
49	Herm loam, 6 to 25 percent slopes-----	---	12	12	*
50	Herm very cobbly loam, 15 to 40 percent slopes-----	---	2,532	2,532	0.3
51	Herm-Pagoda complex, 0 to 15 percent slopes--	---	468	468	*
52	Hesperus loam, 0 to 3 percent slopes-----	40	271	311	*
53	Hesperus loam, 3 to 6 percent slopes-----	149	1,002	1,151	0.1
54	Hesperus loam, 6 to 12 percent slopes-----	---	709	709	*
55	Hesperus sandy loam, 3 to 12 percent slopes--	---	1,513	1,513	0.2
56	Ilex loam, 3 to 12 percent slopes-----	---	3,775	3,775	0.5
57	Ilex loam, 12 to 25 percent slopes-----	---	107	107	*
58	Ilex-Granath complex, 2 to 6 percent slopes--	580	3,556	4,136	0.5
59	Ilex-Granath complex, 6 to 12 percent slopes-	566	2,725	3,291	0.4
60	Ilex-Pramiss-Falconry complex, 3 to 20 percent slopes-----	192	4,243	4,435	0.6
61	Ilex-Pramiss-Granath complex, 2 to 9 percent slopes-----	88	2,139	2,227	0.3
62	Irak loam, 0 to 3 percent slopes-----	1,018	2,630	3,648	0.5
63	Jemco-Detra-Beje complex, 1 to 15 percent slopes-----	---	306	306	*
64	Lazear-Rock outcrop complex, 12 to 65 percent slopes-----	---	6	6	*
65	Lillings silt loam, sodic, 1 to 3 percent slopes-----	---	5,414	5,414	0.7
66	Lillings silty clay loam, 1 to 3 percent slopes-----	---	2,186	2,186	0.3
67	Lillings silty clay loam, 3 to 6 percent slopes-----	---	428	428	*
68	Longburn-Rock outcrop complex, 10 to 45 percent slopes-----	---	3,859	3,859	0.5
69	Longburn-Rock outcrop complex, 45 to 80 percent slopes-----	---	2,175	2,175	0.3
70	Mack fine sandy loam, 0 to 6 percent slopes--	---	5,407	5,407	0.7
71	Mikett clay loam, saline-sodic, 0 to 3 percent slopes-----	---	2,432	2,432	0.3
72	Mikett clay loam, 0 to 3 percent slopes-----	3	3,413	3,416	0.4
73	Mikim clay loam, 1 to 3 percent slopes-----	---	5,404	5,404	0.7
74	Mikim clay loam, sodic, 0 to 3 percent slopes	---	565	565	*
75	Mikim loam, 3 to 6 percent slopes-----	---	3,973	3,973	0.5
76	Morefield loam, 1 to 3 percent slopes-----	---	629	629	*
77	Morefield loam, 3 to 6 percent slopes-----	---	3,637	3,637	0.5
78	Nortez-Granath complex, 0 to 6 percent slopes	1,634	1,252	2,886	0.4
79	Northrim cobbly loam, 15 to 40 percent slopes	---	5,354	5,354	0.7
80	Ormiston-Beje complex, 5 to 30 percent slopes	---	148	148	*
81	Ormiston-Fivepine complex, 0 to 15 percent slopes-----	139	---	139	*
82	Ormiston-Granath complex, 1 to 12 percent slopes-----	6,032	1,053	7,085	0.9
83	Ormiston-Nortez complex, 3 to 12 percent slopes-----	375	703	1,078	0.1
84	Payter sandy loam, 3 to 15 percent slopes----	---	9	9	*
85	Pinacol loam, 1 to 12 percent slopes-----	---	53	53	*
86	Pinacol loam, 12 to 40 percent slopes-----	---	11	11	*
87	Pits-----	51	673	724	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Dolores County	Montezuma County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
88	Pogo loam, 0 to 2 percent slopes-----	---	1,524	1,524	0.2
89	Pramiss very cobbly loam, 6 to 25 percent slopes-----	2,996	4,288	7,284	0.9
90	Pramiss-Granath complex, 3 to 9 percent slopes-----	275	538	813	0.1
91	Prater loam, 10 to 25 percent slopes-----	---	521	521	*
92	Prater-Dolcan complex, 25 to 60 percent slopes-----	---	6,710	6,710	0.9
93	Pulpit loam, 3 to 12 percent slopes-----	---	22	22	*
94	Pulpit loam, 3 to 6 percent slopes-----	435	1,242	1,677	0.2
95	Pulpit loam, 6 to 12 percent slopes-----	77	707	784	0.1
96	Purcella loam, 0 to 3 percent slopes-----	---	760	760	*
97	Ramper clay loam, 0 to 3 percent slopes-----	---	1,182	1,182	0.2
98	Ramper loam, 0 to 3 percent slopes-----	2,098	4,952	7,050	0.9
99	Ravola clay loam, 0 to 3 percent slopes-----	---	724	724	*
100	Recapture fine sandy loam, 0 to 6 percent slopes-----	---	977	977	0.1
101	Recapture sandy loam, 0 to 6 percent slopes--	---	1,109	1,109	0.1
102	Ricot loam, 1 to 3 percent slopes-----	---	653	653	*
103	Ricot loam, 3 to 6 percent slopes-----	---	198	198	*
104	Ricot loam, 6 to 12 percent slopes-----	---	70	70	*
105	Rizno-Gapmesa complex, 3 to 9 percent slopes-	701	14,546	15,247	2.0
106	Rizno-Littlenan-Bodry association, 3 to 50 percent slopes-----	---	63	63	*
107	Rizno-Ruinpoint-Rock outcrop complex, 1 to 15 percent slopes-----	10	336	346	*
108	Rock outcrop-----	338	4,793	5,131	0.7
109	Romberg-Crosscan complex, 6 to 25 percent slopes-----	14,043	32,244	46,287	5.9
110	Romberg-Crosscan-Rock outcrop complex, 25 to 80 percent slopes-----	15,273	59,885	75,158	9.6
111	Roubideau loam, 1 to 6 percent slopes-----	---	682	682	*
112	Sharps loam, 3 to 6 percent slopes-----	1,244	2,168	3,412	0.4
113	Sharps loam, 6 to 12 percent slopes-----	67	1,594	1,661	0.2
114	Sharps loam, dry, 6 to 12 percent slopes-----	---	874	874	0.1
115	Sharps, dry-Gapmesa complex, 6 to 12 percent slopes-----	---	490	490	*
116	Sharps-Cahona complex, 6 to 12 percent slopes	7,660	9,095	16,755	2.1
117	Sharps-Pulpit complex, 2 to 6 percent slopes-	17,203	1,612	18,815	2.4
118	Sharps-Pulpit complex, 6 to 12 percent slopes	2,416	1,231	3,647	0.5
119	Sheek-Archuleta complex, 6 to 25 percent slopes-----	---	3,269	3,269	0.4
120	Sheek-Archuleta-Rock outcrop complex, 25 to 80 percent slopes-----	1,244	17,238	18,482	2.4
121	Sheek-Archuleta-Rock outcrop complex, 25 to 80 percent slopes, north aspect-----	1,211	12,341	13,552	1.7
122	Sheppard fine sand, 1 to 6 percent slopes----	---	927	927	0.1
123	Sideshow silty clay loam, 0 to 3 percent slopes-----	---	2,334	2,334	0.3
124	Sideshow silty clay loam, 3 to 6 percent slopes-----	11	11,513	11,524	1.5
125	Sideshow silty clay loam, 6 to 12 percent slopes-----	---	7,623	7,623	1.0
126	Sideshow-Zigzag complex, 3 to 25 percent slopes-----	---	6,068	6,068	0.8
127	Sideslide silty clay loam, 3 to 9 percent slopes-----	---	570	570	*
128	Stephouse-Rock outcrop complex, 3 to 10 percent slopes-----	---	541	541	*
129	Torriorhents, 12 to 65 percent slopes-----	---	721	721	*
130	Torriorhents-Badland complex, 25 to 100 percent slopes-----	---	3,692	3,692	0.5

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Dolores County	Montezuma County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
131	Tragmon-Sheek complex, 12 to 25 percent slopes-----	---	3,295	3,295	0.4
132	Typic Argiaquolls, 0 to 3 percent slopes----	---	154	154	*
133	Typic Torriorthents-Rock outcrop complex, 12 to 80 percent slopes-----	---	20,112	20,112	2.6
134	Umbarg-Winner-Tesajo complex, 0 to 2 percent slopes-----	183	972	1,155	0.1
135	Ustic Torrifluvents, 0 to 3 percent slopes----	---	612	612	*
136	Ustic Torriorthents-Gullied land complex, 1 to 60 percent slopes-----	32	1,664	1,696	0.2
137	Ustorthents, 12 to 65 percent slopes-----	---	566	566	*
138	Uzacol-Zwicker-Claysprings complex, 3 to 12 percent slopes-----	---	6,662	6,662	0.9
139	Water-----	123	3,835	3,958	0.5
140	Wauquie very stony loam, 6 to 25 percent slopes-----	116	2,438	2,554	0.3
141	Wauquie-Dolcan complex, 6 to 25 percent slopes-----	3,343	8,177	11,520	1.5
142	Wauquie-Dolcan-Rock outcrop complex, 25 to 80 percent slopes-----	4,101	21,657	25,758	3.3
143	Wetherill loam, 1 to 3 percent slopes-----	8,082	10,333	18,415	2.4
144	Wetherill loam, 3 to 6 percent slopes-----	36,339	59,268	95,607	12.3
145	Wetherill loam, 6 to 12 percent slopes-----	5,725	10,669	16,394	2.1
146	Yarts clay loam, 1 to 6 percent slopes-----	---	102	102	*
147	Yarts fine sandy loam, 1 to 6 percent slopes----	9	394	403	*
148	Zau stony loam, 9 to 25 percent slopes-----	---	18	18	*
149	Zigzag very channery clay loam, 3 to 25 percent slopes-----	53	6,952	7,005	0.9
150	Zigzag-Sideshow complex, 25 to 65 percent slopes-----	---	8,594	8,594	1.1
151	Zyme gravelly clay loam, 3 to 12 percent slopes-----	---	749	749	*
152	Zyme very channery clay loam, 12 to 65 percent slopes-----	---	640	640	*
	Total-----	182,500	596,900	779,400	100.0

* Less than 0.1 percent.

(Yields in the "N" columns are for nonirrigated areas; those in the "I" columns are for irrigated areas. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

[illegible]

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Dry pinto beans		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Lbs	Lbs	AUM	AUM	Bu	Bu
11:										
Barx-----	4c	---	---	---	---	---	---	---	---	---
Gapmesa-----	4c	---	---	---	---	---	---	---	---	---
12:										
Battlerock-----	6c	3e	---	6.00	---	---	0.30	8.00	---	60.00
13:										
Beje-----	6s	---	---	---	---	---	---	---	---	---
Tragmon-----	4e	---	---	---	---	---	---	---	---	---
14:										
Burnson-----	4e	---	---	---	---	---	---	---	---	---
15:										
Burnson, dry-----	4e	---	---	---	---	---	---	---	---	---
16:										
Burnson-----	6e	---	---	---	---	---	---	---	---	---
Herm-----	6e	---	---	---	---	---	---	---	---	---
17:										
Cahona-----	3c	3c	1.50	4.00	350.00	---	0.70	5.50	17.00	60.00
18:										
Cahona-----	3e	3e	1.50	4.00	350.00	---	0.70	5.50	17.00	60.00
19:										
Cahona-----	4e	4e	1.00	3.50	300.00	---	0.50	5.50	15.00	50.00
20:										
Cahona-----	4e	4e	1.00	3.50	300.00	---	0.50	5.50	15.00	50.00
Pulpit-----	4e	4e	1.00	2.50	300.00	---	0.60	3.50	15.00	40.00
21:										
Cahona-----	3e	3e	1.50	4.00	350.00	---	0.70	5.50	17.00	60.00
Sharps-----	3e	3e	1.00	3.00	350.00	---	0.70	4.00	16.00	45.00
Wetherill-----	3e	3e	2.00	5.00	450.00	---	0.70	6.50	18.00	60.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

[illegible]

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

[illegible]

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Dry pinto beans		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Lbs	Lbs	AUM	AUM	Bu	Bu
44: Granath-----	4c	4c	2.00	4.00	450.00	---	1.00	5.00	20.00	60.00
45: Granath-----	4e	4e	2.00	3.50	350.00	---	0.70	4.50	16.00	50.00
46: Granath-----	4e	4e	---	---	---	---	---	---	---	---
Fughes-----	4e	4e	---	---	---	---	---	---	---	---
47: Granath-----	4e	---	---	---	---	---	---	---	---	---
Nortez-----	4e	---	---	---	---	---	---	---	---	---
48: Granath-----	4e	---	---	---	---	---	---	---	---	---
Ormiston-----	7s	---	---	---	---	---	---	---	---	---
Fivepine-----	7s	---	---	---	---	---	---	---	---	---
49: Herm-----	6e	---	---	---	---	---	---	---	---	---
50: Herm-----	7e	---	---	---	---	---	---	---	---	---
51: Herm-----	4e	---	---	---	---	---	---	---	---	---
Pagoda-----	4e	---	---	---	---	---	---	---	---	---
52: Hesperus-----	4c	4c	2.00	4.00	500.00	---	1.20	5.50	24.00	65.00
53: Hesperus-----	4c	4c	2.00	4.00	500.00	---	1.20	5.50	24.00	65.00
54: Hesperus-----	4e	4e	2.00	3.50	450.00	---	1.00	5.00	20.00	55.00
55: Hesperus-----	4e	4e	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

[illegible]

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Dry pinto beans		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Lbs	Lbs	AUM	AUM	Bu	Bu
65: Lillings-----	7s	---	---	---	---	---	---	---	---	---
66: Lillings-----	6s	---	---	---	---	---	---	---	---	---
67: Lillings-----	6s	---	---	---	---	---	---	---	---	---
68: Longburn-----	7e	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---	---	---	---	---	---	---	---	---
69: Longburn-----	7e	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---	---	---	---	---	---	---	---	---
70: Mack-----	6c	---	---	---	---	---	---	---	---	---
71: Mikett-----	7s	---	---	---	---	---	---	---	---	---
72: Mikett-----	6s	4s	---	5.00	---	---	0.40	7.00	---	60.00
73: Mikim-----	6s	4s	---	5.50	---	---	0.60	7.00	---	60.00
74: Mikim-----	7s	---	---	---	---	---	---	---	---	---
75: Mikim-----	6s	4s	---	5.50	---	---	0.60	7.00	---	60.00
76: Morefield-----	3c	---	---	---	---	---	---	---	---	---
77: Morefield-----	3e	---	---	---	---	---	---	---	---	---
78: Nortez-----	4c	4c	1.00	3.00	400.00	---	0.80	4.00	16.00	50.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Dry pinto beans		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Lbs	Lbs	AUM	AUM	Bu	Bu
78: Granath-----	4c	4c	2.00	4.00	450.00	---	1.00	5.00	20.00	60.00
79: Northrim-----	7e	---	---	---	---	---	---	---	---	---
80: Ormiston-----	6e	---	---	---	---	---	---	---	---	---
Beje-----	6s	---	---	---	---	---	---	---	---	---
81: Ormiston-----	7s	---	---	---	---	---	---	---	---	---
Fivepine-----	7s	---	---	---	---	---	---	---	---	---
82: Ormiston-----	7s	---	---	---	---	---	---	---	---	---
Granath-----	4e	---	---	---	---	---	---	---	---	---
83: Ormiston-----	7s	---	---	---	---	---	---	---	---	---
Nortez-----	4e	---	---	---	---	---	---	---	---	---
84: Payter-----	4e	4e	---	---	---	---	---	---	---	---
85: Pinacol-----	4e	4e	---	2.00	---	---	---	---	---	---
86: Pinacol-----	7e	---	---	---	---	---	---	---	---	---
87: Pits-----	8s	---	---	---	---	---	---	---	---	---
88: Pogo-----	6w	---	---	---	---	---	---	---	---	---
89: Pramiss-----	6e	---	---	---	---	---	---	---	---	---
90: Pramiss-----	4e	4e	0.80	---	300.00	---	0.60	4.00	17.00	50.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Dry pinto beans		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Lbs	Lbs	AUM	AUM	Bu	Bu
90: Granath-----	4e	4e	2.00	4.00	450.00	---	1.00	5.00	20.00	60.00
91: Prater-----	6e	---	---	---	---	---	---	---	---	---
92: Prater-----	7e	---	---	---	---	---	---	---	---	---
Dolcan-----	7e	---	---	---	---	---	---	---	---	---
93: Pulpit-----	4e	4e	---	2.00	200.00	---	---	---	---	---
94: Pulpit-----	3e	3e	1.00	3.00	350.00	---	0.80	4.00	16.00	55.00
95: Pulpit-----	4e	4e	1.00	2.50	300.00	---	0.60	3.50	15.00	45.00
96: Purcella-----	4s	4s	---	3.00	---	---	0.50	4.00	---	---
97: Ramper-----	3c	3c	---	4.00	---	---	1.00	5.50	---	60.00
98: Ramper-----	3c	3c	---	4.00	---	---	1.00	5.50	---	60.00
99: Ravola-----	7s	---	---	---	---	---	---	---	---	---
100: Recapture-----	7s	---	---	---	---	---	---	---	---	---
101: Recapture-----	6s	---	---	---	---	---	---	---	---	---
102: Ricot-----	4c	4c	---	3.50	---	---	0.80	4.50	20.00	---
103: Ricot-----	4c	4c	---	3.50	---	---	0.80	4.50	20.00	---
104: Ricot-----	4e	4e	---	3.00	---	---	0.70	4.00	18.00	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

[illegible]

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Dry pinto beans		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Lbs	Lbs	AUM	AUM	Bu	Bu
115:										
Sharps, dry-----	4e	---	---	---	---	---	---	---	---	---
Gapmesa-----	4e	---	---	---	---	---	---	---	---	---
116:										
Sharps-----	4e	4e	1.00	2.50	300.00	---	0.60	3.50	15.00	45.00
Cahona-----	4e	4e	1.00	3.50	300.00	---	0.50	5.50	15.00	50.00
117:										
Sharps-----	3e	3e	1.00	3.00	350.00	---	0.70	4.00	16.00	55.00
Pulpit-----	3e	3e	1.00	3.00	350.00	---	0.80	4.00	16.00	55.00
118:										
Sharps-----	4e	4e	1.00	2.50	300.00	---	0.60	3.50	15.00	45.00
Pulpit-----	4e	4e	1.00	2.50	300.00	---	0.60	3.50	15.00	45.00
119:										
Sheek-----	7s	---	---	---	---	---	---	---	---	---
Archuleta-----	7s	---	---	---	---	---	---	---	---	---
120:										
Sheek-----	7e	---	---	---	---	---	---	---	---	---
Archuleta-----	7e	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---	---	---	---	---	---	---	---	---
121:										
Sheek-----	7e	---	---	---	---	---	---	---	---	---
Archuleta-----	7e	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---	---	---	---	---	---	---	---	---
122:										
Sheppard-----	6s	---	---	---	---	---	---	---	---	---
123:										
Sideshow-----	3s	3s	---	4.00	---	---	0.60	5.50	14.00	55.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Dry pinto beans		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Lbs	Lbs	AUM	AUM	Bu	Bu
124: Sideshow-----	3e	3e	---	4.00	275.00	---	0.70	6.00	17.00	60.00
125: Sideshow-----	4e	4e	---	3.50	250.00	---	0.50	5.00	16.00	55.00
126: Sideshow-----	6e	---	---	---	---	---	---	---	---	---
Zigzag-----	6e	---	---	---	---	---	---	---	---	---
127: Sideslide-----	3e	3e	---	---	---	---	1.50	5.50	---	---
128: Stephouse-----	6s	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---	---	---	---	---	---	---	---	---
129: Torriorthents-----	7e	---	---	---	---	---	---	---	---	---
130: Torriorthents-----	7e	---	---	---	---	---	---	---	---	---
Badland-----	8e	---	---	---	---	---	---	---	---	---
131: Tragmon-----	6e	---	---	---	---	---	---	---	---	---
Sheek-----	7s	---	---	---	---	---	---	---	---	---
132: Typic Argiaquolls--	4w	---	---	---	---	---	---	---	---	---
133: Typic Torriorthents	7e	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---	---	---	---	---	---	---	---	---
134: Umbarg-----	3w	3w	---	---	---	---	1.00	8.00	---	---
Winner-----	6w	6w	---	---	---	---	1.00	6.00	---	---
Tesajo-----	4w	4w	---	---	---	---	1.00	5.00	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Dry pinto beans		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Lbs	Lbs	AUM	AUM	Bu	Bu
135: Ustic Torrifluvents	6s	---	---	---	---	---	---	---	---	---
136: Ustic Torriorthents	7e	---	---	---	---	---	---	---	---	---
Gullied land-----	8e	---	---	---	---	---	---	---	---	---
137: Ustorthents-----	7e	---	---	---	---	---	---	---	---	---
138: Uzacol-----	6s	---	---	---	---	---	---	---	---	---
Zwicker-----	6s	---	---	---	---	---	---	---	---	---
Claysprings-----	7s	---	---	---	---	---	---	---	---	---
139: Water-----	---	---	---	---	---	---	---	---	---	---
140: Wauquie-----	7e	---	---	---	---	---	---	---	---	---
141: Wauquie-----	7e	---	---	---	---	---	---	---	---	---
Dolcan-----	7s	---	---	---	---	---	---	---	---	---
142: Wauquie-----	7e	---	---	---	---	---	---	---	---	---
Dolcan-----	7e	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---	---	---	---	---	---	---	---	---
143: Wetherill-----	3c	3c	2.00	5.00	450.00	---	0.70	6.50	18.00	60.00
144: Wetherill-----	3e	3e	2.00	5.00	450.00	---	0.70	6.50	18.00	60.00
145: Wetherill-----	4e	4e	2.00	4.00	400.00	---	0.50	5.00	17.00	50.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

[illegible]

Table 6.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
1	Ackmen loam, 1 to 3 percent slopes (Prime farmland if irrigated)
2	Ackmen loam, 3 to 6 percent slopes (Prime farmland if irrigated)
8	Barx loam, 3 to 6 percent slopes (Prime farmland if irrigated)
12	Battlerock clay loam, 0 to 6 percent slopes (Prime farmland if irrigated)
23	Collide clay loam, 3 to 6 percent slopes (Prime farmland if irrigated)
25	Collide complex, 0 to 2 percent slopes (Prime farmland if irrigated)
26	Collide complex, 2 to 6 percent slopes (Prime farmland if irrigated)
44	Granath loam, 3 to 6 percent slopes (Prime farmland if irrigated)
52	Hesperus loam, 0 to 3 percent slopes (Prime farmland if irrigated)
53	Hesperus loam, 3 to 6 percent slopes (Prime farmland if irrigated)
70	Mack fine sandy loam, 0 to 6 percent slopes (Prime farmland if irrigated)
73	Mikim clay loam, 1 to 3 percent slopes (Prime farmland if irrigated)
75	Mikim loam, 3 to 6 percent slopes (Prime farmland if irrigated)
76	Morefield loam, 1 to 3 percent slopes (Prime farmland if irrigated)
77	Morefield loam, 3 to 6 percent slopes (Prime farmland if irrigated)
97	Ramper clay loam, 0 to 3 percent slopes (Prime farmland if irrigated)
98	Ramper loam, 0 to 3 percent slopes (Prime farmland if irrigated)
102	Ricot loam, 1 to 3 percent slopes (Prime farmland if irrigated)
103	Ricot loam, 3 to 6 percent slopes (Prime farmland if irrigated)
123	Sideshow silty clay loam, 0 to 3 percent slopes (Prime farmland if irrigated)
124	Sideshow silty clay loam, 3 to 6 percent slopes (Prime farmland if irrigated)
134	Umbarg-Winner-Tesajo complex, 0 to 2 percent slopes (Prime farmland if irrigated and drained)
143	Wetherill loam, 1 to 3 percent slopes (Prime farmland if irrigated)
144	Wetherill loam, 3 to 6 percent slopes (Prime farmland if irrigated)
146	Yarts clay loam, 1 to 6 percent slopes (Prime farmland if irrigated)
147	Yarts fine sandy loam, 1 to 6 percent slopes (Prime farmland if irrigated)

Table 7.--Productivity and Characteristic Plant Communities

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
1: Ackmen-----	Loamy Bottom	1,000	800	600	Muttongrass----- Western wheatgrass----- Wyoming big sagebrush----- Indian ricegrass----- Fourwing saltbush----- Rubber rabbitbrush----- Bottlebrush squirreltail-----	30 20 15 5 5 5 5
2: Ackmen-----	Loamy Bottom	1,000	800	600	Muttongrass----- Western wheatgrass----- Wyoming big sagebrush----- Indian ricegrass----- Fourwing saltbush----- Rubber rabbitbrush----- Bottlebrush squirreltail-----	30 20 15 5 5 5 5
3: Arabrab-----	Shallow Loamy Mesa Top Pinyon Juniper	900	700	400	Twoneedle pinyon----- Utah juniper----- Muttongrass----- Indian ricegrass----- Utah serviceberry----- Antelope bitterbrush----- Cliff fendlerbush----- True mountain mahogany----- Bottlebrush squirreltail-----	5 5 20 10 5 5 5 5 5
4: Arabrab-----	Shallow Loamy Mesa Top Pinyon Juniper	900	700	400	Twoneedle pinyon----- Utah juniper----- Muttongrass----- Indian ricegrass----- Utah serviceberry----- Antelope bitterbrush----- Cliff fendlerbush----- True mountain mahogany----- Bottlebrush squirreltail-----	5 5 20 10 5 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
4:						
Longburn-----	Shallow Loamy Mesa Top	850	600	350	Utah juniper-----	5
	Pinyon Juniper				Twoneedle pinyon-----	5
					Muttongrass-----	20
					Indian ricegrass-----	10
					Utah serviceberry-----	5
					Bottlebrush squirreltail-----	5
					Antelope bitterbrush-----	5
					True mountain mahogany-----	5
					Cliff fendlerbush-----	5
5:						
Archuleta-----	Ponderosa Pine	1,400	1,200	900	Ponderosa pine-----	5
					Gambel's oak-----	15
					Rocky Mountain juniper-----	2
					Twoneedle pinyon-----	2
					Arizona fescue-----	10
					Mountain muhly-----	10
					Prairie junegrass-----	10
					Saskatoon serviceberry-----	5
					Antelope bitterbrush-----	5
					Common snowberry-----	5
					Mountain brome-----	5
					True mountain mahogany-----	5
Sanchez-----	Ponderosa Pine	750	600	550	Ponderosa pine-----	5
					Rocky Mountain juniper-----	5
					Twoneedle pinyon-----	5
					Gambel's oak-----	10
					Arizona fescue-----	15
					Mountain muhly-----	10
					Prairie junegrass-----	10
					Saskatoon serviceberry-----	5
					Elk sedge-----	5
					Mountain brome-----	5
					Snowberry-----	5
					True mountain mahogany-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
6:						
Argiustolls-----	Douglas Fir	1,300	1,000	800	Douglas fir-----	10
					Gambel's oak-----	35
					Muttongrass-----	10
					Utah snowberry-----	10
					Utah serviceberry-----	10
					Elk sedge-----	5
					True mountain mahogany-----	5
					Prairie junegrass-----	5
Haplustalfs-----	Ponderosa Pine	1,100	900	700	Douglas fir-----	10
					Gambel's oak-----	35
					Muttongrass-----	10
					Utah serviceberry-----	10
					Utah snowberry-----	10
					Elk sedge-----	5
					True mountain mahogany-----	5
					Prairie junegrass-----	5
7:						
Argiustolls-----	Ponderosa Pine	1,000	800	600	Ponderosa pine-----	10
					Gambel's oak-----	35
					Muttongrass-----	10
					Utah serviceberry-----	10
					Utah snowberry-----	10
					Elk sedge-----	5
					True mountain mahogany-----	5
					Prairie junegrass-----	5
Haplustalfs-----	Ponderosa Pine	900	700	500	Ponderosa pine-----	10
					Gambel's oak-----	35
					Muttongrass-----	10
					Utah serviceberry-----	10
					Utah snowberry-----	10
					Elk sedge-----	5
					True mountain mahogany-----	5
					Prairie junegrass-----	5
Rock outcrop-----	---	---	---	---	---	---

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
8: Barx-----	Semidesert Loam	800	700	400	Galleta-----	15
					Indian ricegrass-----	10
					Wyoming big sagebrush-----	10
					Muttongrass-----	10
					Blue grama-----	5
					New Mexico feathergrass-----	5
					Winterfat-----	2
9: Barx-----	Semidesert Loam	800	700	400	Galleta-----	15
					Indian ricegrass-----	10
					Wyoming big sagebrush-----	10
					Muttongrass-----	10
					Blue grama-----	5
					New Mexico feathergrass-----	5
					Winterfat-----	2
10: Barx-----	Upland Loam (basin Big Sagebrush)	1,300	1,000	800	Wyoming big sagebrush-----	20
					Indian ricegrass-----	15
					Needleandthread-----	15
					Blue grama-----	5
					Fourwing saltbush-----	5
					Galleta-----	5
					Muttongrass-----	5
					Sand dropseed-----	5
					Winterfat-----	5
11: Barx-----	Semidesert Loam	800	700	400	Galleta-----	15
					Indian ricegrass-----	10
					Wyoming big sagebrush-----	10
					Muttongrass-----	10
					Blue grama-----	5
					New Mexico feathergrass-----	5
					Winterfat-----	2

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
11: Gapmesa-----	Semidesert Loam	750	600	450	Galleta-----	15
					New Mexico feathergrass-----	15
					Wyoming big sagebrush-----	10
					Indian ricegrass-----	10
					Blue grama-----	5
					Western wheatgrass-----	5
					Winterfat-----	2
12: Battlerock-----	Alkali Bottom	900	700	500	Alkali sacaton-----	25
					Greasewood-----	15
					Inland saltgrass-----	15
					Basin big sagebrush-----	5
					Fourwing saltbush-----	5
					Galleta-----	5
					Saltbush-----	5
					Western wheatgrass-----	5
13: Beje-----	Brushy Loam	2,000	1,500	1,200	Gambel's oak-----	10
					Saskatoon serviceberry-----	10
					Mountain brome-----	10
					Snowberry-----	5
					True mountain mahogany-----	5
					Western wheatgrass-----	5
					Muttongrass-----	5
Tragmon-----	Brushy Loam	3,000	2,000	1,500	Gambel's oak-----	10
					Serviceberry-----	10
					Sagebrush-----	5
					True mountain mahogany-----	5
					Prairie junegrass-----	5
					Western wheatgrass-----	5
					Muttongrass-----	5
					Snowberry-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
14: Burnson-----	Ponderosa Pine	1,200	900	600	Ponderosa pine----- Gambel's oak----- Arizona fescue----- Mountain brome----- Common snowberry----- Rocky Mountain juniper----- Western wheatgrass----- Antelope bitterbrush-----	10 20 15 15 10 5 5 5
15: Burnson, dry-----	Ponderosa Pine	1,200	900	600	Ponderosa pine----- Gambel's oak----- Mountain brome----- Arizona fescue----- Common snowberry----- Rocky Mountain juniper----- Western wheatgrass----- Antelope bitterbrush-----	10 20 15 15 10 5 5 5
16: Burnson-----	Ponderosa Pine	1,200	900	600	Ponderosa pine----- Gambel's oak----- Arizona fescue----- Mountain brome----- Common snowberry----- Rocky Mountain juniper----- Western wheatgrass----- Antelope bitterbrush-----	10 20 15 15 10 5 5 5
Herm-----	Ponderosa Pine	1,500	1,300	1,000	Ponderosa pine----- Arizona fescue----- Gambel's oak----- Saskatoon serviceberry----- Mountain brome----- Elk sedge----- Common snowberry-----	10 15 10 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
17: Cahona-----	Loamy Foothills	1,300	1,000	700	Muttongrass----- Western wheatgrass----- Big sagebrush----- Bottlebrush squirreltail----- Rubber rabbitbrush----- Needleandthread----- Galleta----- Antelope bitterbrush-----	20 20 15 5 5 5 5 5
18: Cahona-----	Loamy Foothills	1,300	1,000	700	Muttongrass----- Western wheatgrass----- Big sagebrush----- Bottlebrush squirreltail----- Rubber rabbitbrush----- Needleandthread----- Galleta----- Antelope bitterbrush-----	20 20 15 5 5 5 5 5
19: Cahona-----	Loamy Foothills	1,300	1,000	700	Muttongrass----- Western wheatgrass----- Big sagebrush----- Bottlebrush squirreltail----- Rubber rabbitbrush----- Needleandthread----- Galleta----- Antelope bitterbrush-----	20 20 15 5 5 5 5 5
20: Cahona-----	Loamy Foothills	1,300	1,000	700	Muttongrass----- Western wheatgrass----- Big sagebrush----- Bottlebrush squirreltail----- Rubber rabbitbrush----- Needleandthread----- Galleta----- Antelope bitterbrush-----	20 20 15 5 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
20: Pulpit-----	Loamy Foothills	1,125	800	600	Western wheatgrass-----	25
					Muttongrass-----	20
					Indian ricegrass-----	15
					Big sagebrush-----	10
					Needleandthread-----	5
					Rabbitbrush-----	5
					Prairie junegrass-----	5
21: Cahona-----	Loamy Foothills	1,300	1,000	700	Muttongrass-----	20
					Western wheatgrass-----	20
					Big sagebrush-----	15
					Bottlebrush squirreltail-----	5
					Rubber rabbitbrush-----	5
					Needleandthread-----	5
					Galleta-----	5
					Antelope bitterbrush-----	5
Sharps-----	Loamy Foothills	1,200	900	700	Western wheatgrass-----	30
					Big sagebrush-----	10
					Muttongrass-----	10
					Indian ricegrass-----	10
					Bottlebrush squirreltail-----	10
					Black sagebrush-----	5
					Galleta-----	5
Wetherill-----	Loamy Foothills	1,500	1,200	800	Muttongrass-----	30
					Western wheatgrass-----	30
					Big sagebrush-----	15
					Indian ricegrass-----	5
					Bottlebrush squirreltail-----	5
					Needleandthread-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
22: Claysprings-----	Salt-desert Breaks	500	350	200	Galleta-----	20
					Shadscale saltbush-----	20
					Salina wildrye-----	15
					Alkali sacaton-----	10
					Indian ricegrass-----	5
					Big sagebrush-----	5
					Fourwing saltbush-----	5
					Bottlebrush squirreltail-----	5
					Utah juniper-----	5
23: Collide-----	Loamy Foothills	1,600	1,300	900	Western wheatgrass-----	20
					Muttongrass-----	20
					Big sagebrush-----	15
					Bottlebrush squirreltail-----	5
					Rubber rabbitbrush-----	5
					Needleandthread-----	5
24: Collide-----	Loamy Foothills	1,600	1,300	900	Western wheatgrass-----	20
					Muttongrass-----	20
					Big sagebrush-----	15
					Bottlebrush squirreltail-----	5
					Rubber rabbitbrush-----	5
					Needleandthread-----	5
25: Collide-----	Loamy Foothills	1,600	1,300	900	Western wheatgrass-----	20
					Muttongrass-----	20
					Big sagebrush-----	15
					Bottlebrush squirreltail-----	5
					Rubber rabbitbrush-----	5
					Needleandthread-----	5
Collide, cobbly substratum-----	Loamy Foothills	1,400	1,100	700	Western wheatgrass-----	20
					Muttongrass-----	20
					Big sagebrush-----	15
					Bottlebrush squirreltail-----	5
					Rubber rabbitbrush-----	5
					Needleandthread-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
26:						
Collide-----	Loamy Foothills	1,600	1,300	900	Western wheatgrass-----	20
					Muttongrass-----	20
					Big sagebrush-----	15
					Bottlebrush squirreltail-----	5
					Rubber rabbitbrush-----	5
					Needleandthread-----	5
Collide, cobbly substratum-----	Loamy Foothills	1,300	1,100	900	Western wheatgrass-----	20
					Muttongrass-----	20
					Big sagebrush-----	15
					Bottlebrush squirreltail-----	5
					Rubber rabbitbrush-----	5
					Needleandthread-----	5
27:						
Dalmatian-----	River Bottom	2,500	2,000	1,500	Elk sedge-----	20
					Mountain brome-----	10
					Western yarrow-----	5
					Tufted hairgrass-----	5
					Rocky Mountain iris-----	5
Apmay-----	River Bottom	2,500	2,000	1,500	Elk sedge-----	20
					Mountain brome-----	10
					Rocky Mountain iris-----	5
					Western yarrow-----	5
					Tufted hairgrass-----	5
Schrader-----	River Bottom	2,500	2,000	1,500	Sedge-----	20
					Rush-----	10
					Tufted hairgrass-----	5
					Western yarrow-----	5
					Rocky Mountain iris-----	5
28:						
Dam-----	---	---	---	---	---	---

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
29: Endoaquolls-----	River Bottom	2,500	2,000	1,500	Baltic rush----- Elk sedge----- Tufted hairgrass----- Willow----- Narrowleaf cottonwood----- Woods' rose----- Blue spruce-----	30 20 10 10 5 5 5
Ustifluvents-----	River Bottom	1,200	1,000	800	Narrowleaf cottonwood----- Redtop----- Miscellaneous trees----- Mountain brome----- Common snowberry----- Blue spruce-----	15 10 10 10 5 5
30: Falconry-----	Pine Grasslands	900	650	550	Ponderosa pine----- Arizona fescue----- Parry's oatgrass----- Mountain muhly----- Gambel's oak----- Elk sedge----- Needlegrass----- Slender wheatgrass----- True mountain mahogany----- Mountain brome----- Muttongrass----- Whortleleaf snowberry-----	10 20 20 10 5 5 5 3 3 3 2 2
31: Farb-----	Shallow Desert	550	400	275	New Mexico feathergrass----- Indian ricegrass----- Galleta----- Mormon tea----- Fourwing saltbush----- Needleandthread----- Shadscale saltbush-----	20 15 15 5 5 5 5
Rock outcrop-----	---	---	---	---	---	---

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
32: Fardraw-----	Brushy Loam	3,200	2,200	1,600	Gambel's oak----- Mountain brome----- Arizona fescue----- Elk sedge----- Needleandthread----- Whortleleaf snowberry-----	25 10 10 10 5 5
33: Fardraw-----	Pine Grasslands	1,200	900	750	Parry's oatgrass----- Arizona fescue----- Mountain muhly----- Ponderosa pine----- Bottlebrush squirreltail----- Rocky Mountain juniper----- Gambel's oak-----	20 20 15 15 5 2 5
Nortez-----	Ponderosa Pine	1,400	1,200	900	Ponderosa pine----- Arizona fescue----- Parry's oatgrass----- Mountain muhly----- Western wheatgrass----- Mountain big sagebrush----- Mountain brome----- Prairie junegrass----- Antelope bitterbrush----- Gambel's oak-----	5 25 10 10 10 5 5 5 5 5
34: Fardraw-----	Pine Grasslands	1,200	900	750	Parry's oatgrass----- Arizona fescue----- Mountain muhly----- Ponderosa pine----- Bottlebrush squirreltail----- Rocky Mountain juniper----- Gambel's oak-----	20 20 15 15 5 2 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
35: Fardraw-----	Pine Grasslands	1,200	900	750	Parry's oatgrass----- Arizona fescue----- Mountain muhly----- Ponderosa pine----- Bottlebrush squirreltail----- Gambel's oak----- Rocky Mountain juniper-----	20 20 15 10 5 5 2
Granath-----	Mountain Loam	1,700	1,400	1,100	Gambel's oak----- Arizona fescue----- Mountain muhly----- Western wheatgrass----- Mountain brome----- Snowberry-----	15 15 10 10 5 5
36: Fivepine-----	Ponderosa Pine	1,200	800	600	Ponderosa pine----- Gambel's oak----- Western wheatgrass----- Pine dropseed----- Prairie junegrass----- Mountain muhly----- Common snowberry----- Nodding brome----- Utah serviceberry-----	10 15 15 10 10 5 5 5 5
37: Fluvaquents-----	River Bottom	2,500	2,000	1,500	Western wheatgrass----- Alkali sacaton----- Sedge----- Inland saltgrass----- Needleandthread----- Rush----- Willow----- Narrowleaf cottonwood-----	20 15 10 10 10 10 10 5
Haplustolls-----	River Bottom	1,200	900	700	Western wheatgrass----- Willow----- Muttongrass----- Prairie junegrass----- Mountain brome-----	20 20 10 10 10

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
38:						
Fluvents-----	River Bottom	2,000	1,200	500	Alkali sacaton-----	30
					Western wheatgrass-----	30
					Cottonwood-----	10
Fluvaquents-----	River Bottom	2,500	2,000	1,500	Western wheatgrass-----	20
					Alkali sacaton-----	15
					Willow-----	10
					Sedge-----	10
					Inland saltgrass-----	10
					Needleandthread-----	10
					Rush-----	10
					Narrowleaf cottonwood-----	5
39:						
Fughes-----	Loamy Park	2,300	1,800	1,100	Arizona fescue-----	30
					Mountain muhly-----	20
					Parry's oatgrass-----	15
					Western wheatgrass-----	10
					Big sagebrush-----	5
					Slender wheatgrass-----	5
40:						
Fughes-----	Brushy Loam	3,000	2,000	1,500	Gambel's oak-----	10
					Arizona fescue-----	10
					Mountain brome-----	10
					Saskatoon serviceberry-----	5
					Common snowberry-----	5
					Slender wheatgrass-----	5
					Mountain muhly-----	5
					Western wheatgrass-----	5
Herm-----	Brushy Loam	2,500	1,800	1,400	Gambel's oak-----	10
					Saskatoon serviceberry-----	10
					Mountain brome-----	10
					Arizona fescue-----	10
					Western wheatgrass-----	10
					Common snowberry-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
41:						
Fughes-----	Loamy Park	1,500	1,300	1,100	Mountain muhly-----	20
					Western wheatgrass-----	20
					Gambel's oak-----	10
					Big sagebrush-----	5
					Slender wheatgrass-----	5
Sheek-----	Ponderosa Pine	1,100	950	700	Ponderosa pine-----	10
					Gambel's oak-----	20
					Arizona fescue-----	15
					Mountain brome-----	15
					Prairie junegrass-----	10
					Muttongrass-----	10
					Indian ricegrass-----	5
					Utah serviceberry-----	5
42:						
Gladel-----	Pinyon-Juniper	450	350	250	Twoneedle pinyon-----	10
					Utah juniper-----	5
					Western wheatgrass-----	15
					Indian ricegrass-----	10
					True mountain mahogany-----	10
					Needleandthread-----	10
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	5
					Antelope bitterbrush-----	5
Pulpit-----	Loamy Foothills	1,200	800	600	Western wheatgrass-----	30
					Muttongrass-----	20
					Big sagebrush-----	10
					Bottlebrush squirreltail-----	5
					Needleandthread-----	5
					Antelope bitterbrush-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
43: Goldbug-----	Ponderosa Pine	1,100	900	750	Ponderosa pine----- Arizona fescue----- Prairie junegrass----- Mountain muhly----- Western wheatgrass----- Gambel's oak----- Common juniper----- True mountain mahogany----- Mountain brome-----	10 20 10 10 10 10 5 5 5
44: Granath-----	Mountain Loam	1,700	1,400	1,100	Arizona fescue----- Big sagebrush----- Western wheatgrass----- Mountain muhly----- Mountain brome----- Snowberry-----	20 10 10 10 5 5
45: Granath-----	Mountain Loam	1,700	1,400	1,100	Arizona fescue----- Big sagebrush----- Western wheatgrass----- Mountain muhly----- Mountain brome----- Snowberry-----	20 10 10 10 5 5
46: Granath-----	Mountain Loam	1,500	1,300	1,100	Arizona fescue----- Big sagebrush----- Mountain muhly----- Western wheatgrass----- Mountain brome----- Common snowberry-----	20 10 10 10 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
46: Fughes-----	Loamy Park	1,500	1,300	1,100	Arizona fescue-----	20
					Mountain muhly-----	20
					Parry's oatgrass-----	15
					Gambel's oak-----	10
					Western wheatgrass-----	10
					Big sagebrush-----	5
					Slender wheatgrass-----	5
					Common snowberry-----	2
47: Granath-----	Mountain Loam	1,800	1,500	1,200	Arizona fescue-----	20
					Western wheatgrass-----	10
					Mountain muhly-----	10
					Mountain brome-----	10
					Big sagebrush-----	5
Nortez-----	Pine Grasslands	1,400	1,200	900	Ponderosa pine-----	10
					Arizona fescue-----	20
					Parry's oatgrass-----	15
					Mountain muhly-----	10
					Gambel's oak-----	5
					Big sagebrush-----	5
					Mountain brome-----	3
					Prairie junegrass-----	3
					Antelope bitterbrush-----	2
48: Granath-----	Mountain Loam	1,800	1,500	1,200	Arizona fescue-----	20
					Western wheatgrass-----	10
					Mountain muhly-----	10
					Mountain brome-----	10
					Big sagebrush-----	5
					Common snowberry-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
48: Ormiston-----	Mountain Clay	1,200	900	600	Western wheatgrass-----	25
					Arizona fescue-----	15
					Needlegrass-----	15
					Slender wheatgrass-----	10
					Black sagebrush-----	5
					Prairie junegrass-----	5
					Mountain muhly-----	5
Fivepine-----	Ponderosa Pine	1,200	800	600	Muttongrass-----	5
					Ponderosa pine-----	10
					Gambel's oak-----	15
					Western wheatgrass-----	15
					Mountain muhly-----	10
					Prairie junegrass-----	5
					Utah serviceberry-----	5
49: Herm-----	Ponderosa Pine	1,500	1,300	1,000	Common snowberry-----	5
					Ponderosa pine-----	10
					Arizona fescue-----	15
					Prairie junegrass-----	10
					Mountain muhly-----	10
					Gambel's oak-----	10
					Common snowberry-----	5
50: Herm-----	Ponderosa Pine	1,500	1,300	1,000	Saskatoon serviceberry-----	5
					Ponderosa pine-----	10
					Arizona fescue-----	15
					Prairie junegrass-----	10
					Mountain muhly-----	10
					Gambel's oak-----	10
					Common snowberry-----	5
					Saskatoon serviceberry-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
51: Herm-----	Ponderosa Pine	1,600	1,300	1,000	Ponderosa pine----- Arizona fescue----- Gambel's oak----- Mountain muhly----- Prairie junegrass----- Saskatoon serviceberry----- Common snowberry-----	10 15 10 10 10 5 5
Pagoda-----	Ponderosa Pine	1,400	1,200	1,000	Ponderosa pine----- Gambel's oak----- Western wheatgrass----- Arizona fescue----- Prairie junegrass----- Pine dropseed----- Saskatoon serviceberry----- Mountain muhly----- Common snowberry-----	10 15 15 15 10 10 5 5 5
52: Hesperus-----	Loamy Park	2,500	1,800	1,000	Arizona fescue----- Parry's oatgrass----- Mountain muhly----- Western wheatgrass----- Big sagebrush----- Nodding brome----- Common snowberry-----	25 15 15 10 5 5 2
53: Hesperus-----	Loamy Park	2,500	1,800	1,000	Arizona fescue----- Parry's oatgrass----- Mountain muhly----- Western wheatgrass----- Big sagebrush----- Nodding brome----- Common snowberry-----	25 15 15 10 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
54: Hesperus-----	Brushy Loam	3,000	2,000	1,500	Gambel's oak-----	10
					Nodding brome-----	10
					Elk sedge-----	10
					Utah serviceberry-----	5
					Arizona fescue-----	5
					Needleandthread-----	5
					Western wheatgrass-----	5
					Common snowberry-----	5
55: Hesperus-----	Loamy Park	2,500	1,800	1,200	Arizona fescue-----	25
					Parry's oatgrass-----	15
					Mountain muhly-----	15
					Western wheatgrass-----	10
					Big sagebrush-----	5
					Nodding brome-----	5
					Common snowberry-----	5
56: Ilex-----	Ponderosa Pine	1,800	1,500	1,200	Ponderosa pine-----	10
					Arizona fescue-----	25
					Western wheatgrass-----	15
					Mountain muhly-----	10
					Gambel's oak-----	5
57: Ilex-----	Ponderosa Pine	1,800	1,500	1,200	Ponderosa pine-----	10
					Arizona fescue-----	25
					Western wheatgrass-----	15
					Mountain muhly-----	10
					Gambel's oak-----	5
					Mountain brome-----	5
58: Ilex-----	Mountain Clay	1,300	1,100	800	Western wheatgrass-----	30
					Black sagebrush-----	20
					Arizona fescue-----	20
					Prairie junegrass-----	5
					Gambel's oak-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
58: Granath-----	Mountain Loam	1,700	1,400	1,100	Gambel's oak-----	15
					Western wheatgrass-----	10
					Mountain muhly-----	10
					Arizona fescue-----	10
					Mountain mahogany-----	5
					Mountain brome-----	5
					Snowberry-----	5
					Big sagebrush-----	5
59: Ilex-----	Mountain Clay	1,300	1,100	800	Western wheatgrass-----	30
					Arizona fescue-----	20
					Black sagebrush-----	15
					Gambel's oak-----	5
					Prairie junegrass-----	5
Granath-----	Mountain Loam	1,700	1,400	1,100	Gambel's oak-----	15
					Western wheatgrass-----	10
					Mountain muhly-----	10
					Arizona fescue-----	10
					Mountain mahogany-----	5
					Mountain brome-----	5
					Snowberry-----	5
					Big sagebrush-----	5
60: Ilex-----	Mountain Loam	1,800	1,500	1,200	Arizona fescue-----	25
					Western wheatgrass-----	30
					Mountain muhly-----	10
					Big sagebrush-----	5
					Mountain brome-----	5
					Common snowberry-----	5
					Prairie junegrass-----	5
Pramiss-----	Ponderosa Pine	1,100	800	500	Ponderosa pine-----	10
					Arizona fescue-----	15
					Western wheatgrass-----	10
					Gambel's oak-----	5
					Mountain muhly-----	5
					Prairie junegrass-----	5
					Slender wheatgrass-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
60: Falconry-----	Pine Grasslands	900	650	550	Ponderosa pine-----	10
					Mountain muhly-----	10
					Gambel's oak-----	5
					Muttongrass-----	2
					Slender wheatgrass-----	3
					True mountain mahogany-----	3
					Mountain brome-----	3
					Whortleleaf snowberry-----	2
					Needlegrass-----	5
61: Ilex-----	Mountain Clay	1,300	1,100	800	Western wheatgrass-----	30
					Black sagebrush-----	20
					Arizona fescue-----	20
					Prairie junegrass-----	5
					Gambel's oak-----	5
Pramiss-----	Mountain Clay	1,100	900	700	Western wheatgrass-----	30
					Arizona fescue-----	15
					Black sagebrush-----	15
					Needlegrass-----	15
					Gambel's oak-----	5
					Mountain muhly-----	5
					Prairie junegrass-----	5
					Slender wheatgrass-----	5
Granath-----	Mountain Loam	1,700	1,400	1,100	Gambel's oak-----	15
					Western wheatgrass-----	10
					Mountain muhly-----	10
					Arizona fescue-----	10
					Mountain mahogany-----	5
					Mountain brome-----	5
					Snowberry-----	5
					Big sagebrush-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
62: Irak-----	Wet Meadow	3,000	2,500	2,000	Alkali sacaton----- Western wheatgrass----- Inland saltgrass----- Sedge----- Fourwing saltbush----- Foxtail barley----- Rubber rabbitbrush----- Rush-----	35 10 10 10 5 5 5 5
63: Jemco-----	Ponderosa Pine	1,100	900	700	Ponderosa pine----- Arizona fescue----- Gambel's oak----- Common snowberry----- Rocky Mountain juniper----- Oregongrape----- Mountain muhly----- Western wheatgrass-----	10 15 5 5 5 5 5 5
Detra-----	Ponderosa Pine	1,600	1,400	1,200	Ponderosa pine----- Common snowberry----- Prairie junegrass----- Western wheatgrass----- Arizona fescue----- Gambel's oak----- Saskatoon serviceberry----- Oregongrape-----	10 10 10 10 10 5 5 5
Beje-----	Ponderosa Pine	2,000	1,300	800	Ponderosa pine----- Arizona fescue----- Prairie junegrass----- Gambel's oak----- Common snowberry----- Western wheatgrass----- Oregongrape----- Black sagebrush-----	10 15 10 10 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
64: Lazear-----	Pinyon Juniper	600	500	400	Indian ricegrass----- Utah juniper----- Mountain mahogany----- Bluebunch wheatgrass----- Muttongrass----- Twoneedle pinyon----- Western wheatgrass----- Bottlebrush squirreltail----- Galleta----- Needleandthread-----	15 15 15 10 10 10 10 5 5 5
Rock outcrop-----	---	---	---	---	---	---
65: Lillings-----	Alkali Bottom	775	600	450	Alkali sacaton----- Greasewood----- Inland saltgrass----- Western wheatgrass----- Galleta----- Saltbush----- Fourwing saltbush----- Big sagebrush-----	25 15 15 5 5 5 5 5
66: Lillings-----	Alkali Bottom	1,000	700	500	Alkali sacaton----- Greasewood----- Inland saltgrass----- Big sagebrush----- Western wheatgrass----- Galleta----- Saltbush----- Fourwing saltbush-----	25 15 15 5 5 5 5 5
67: Lillings-----	Alkali Bottom	1,000	700	500	Alkali sacaton----- Greasewood----- Inland saltgrass----- Western wheatgrass----- Big sagebrush----- Galleta----- Saltbush----- Fourwing saltbush-----	25 15 15 5 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
68: Longburn-----	Shallow Loamy Mesa Top Pinyon Juniper	850	600	350	Utah juniper----- Twoneedle pinyon----- Muttongrass----- Indian ricegrass----- Utah serviceberry----- Antelope bitterbrush----- Cliff fendlerbush----- True mountain mahogany-----	5 5 20 10 5 5 5 5
Rock outcrop-----	---	---	---	---	---	---
69: Longburn-----	Shallow Loamy Mesa Top Pinyon Juniper	850	600	350	Twoneedle pinyon----- Utah juniper----- Muttongrass----- Indian ricegrass----- Utah serviceberry----- Antelope bitterbrush----- Cliff fendlerbush----- True mountain mahogany-----	5 5 20 10 5 5 5 5
Rock outcrop-----	---	---	---	---	---	---
70: Mack-----	Alkali Flat	800	700	500	Alkali sacaton----- Galleta----- Greasewood----- Indian ricegrass----- Fourwing saltbush----- Shadscale saltbush----- scarlet globemallow-----	20 15 10 10 5 5 5
71: Mikett-----	Salt Meadow	1,800	1,600	1,200	Alkali sacaton----- Western wheatgrass----- Inland saltgrass----- Sedge----- Rubber rabbitbrush----- Baltic rush----- Greasewood-----	40 10 10 10 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
72: Mikett-----	Salt Meadow	2,000	1,600	1,200	Alkali sacaton-----	30
					Western wheatgrass-----	10
					Rush-----	10
					Inland saltgrass-----	10
					Sedge-----	10
					Fourwing saltbush-----	5
					Greasewood-----	5
					Rabbitbrush-----	5
73: Mikim-----	Alkali Flat	875	625	450	Alkali sacaton-----	25
					Galleta-----	10
					Western wheatgrass-----	5
					Fourwing saltbush-----	5
					Big sagebrush-----	5
					Shadscale saltbush-----	5
74: Mikim-----	Alkali Flat	675	475	350	Alkali sacaton-----	25
					Greasewood-----	10
					Big sagebrush-----	5
					Fourwing saltbush-----	5
					Galleta-----	5
					Western wheatgrass-----	5
					Shadscale saltbush-----	5
75: Mikim-----	Alkali Flat	875	625	450	Alkali sacaton-----	25
					Galleta-----	10
					Western wheatgrass-----	5
					Fourwing saltbush-----	5
					Big sagebrush-----	5
					Shadscale saltbush-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
76: Morefield-----	Loamy Mesa Top Pinyon Juniper	1,400	1,100	700	Utah juniper-----	5
					Twoneedle pinyon-----	5
					Muttongrass-----	20
					Big sagebrush-----	15
					Indian ricegrass-----	10
					Antelope bitterbrush-----	5
					Yucca-----	5
					True mountain mahogany-----	5
77: Morefield-----	Loamy Mesa Top Pinyon Juniper	1,400	1,100	700	Utah juniper-----	5
					Twoneedle pinyon-----	5
					Muttongrass-----	20
					Big sagebrush-----	15
					Indian ricegrass-----	10
					Antelope bitterbrush-----	5
					Yucca-----	5
					True mountain mahogany-----	5
78: Nortez-----	Pine Grasslands	1,400	1,200	900	Ponderosa pine-----	10
					Arizona fescue-----	25
					Parry's oatgrass-----	10
					Mountain muhly-----	10
					Gambel's oak-----	5
					Mountain big sagebrush-----	5
					Mountain brome-----	3
					Prairie junegrass-----	3
					Antelope bitterbrush-----	2
Granath-----	Mountain Loam	1,900	1,600	1,300	Arizona fescue-----	15
					Western wheatgrass-----	10
					Mountain muhly-----	5
					Big sagebrush-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
79: Northrim-----	Brushy Loam	3,000	2,000	1,500	Gambel's oak-----	15
					Rocky Mountain juniper-----	10
					Prairie junegrass-----	10
					Utah serviceberry-----	5
					Snowberry-----	5
					Cliff fendlerbush-----	5
					Twoneedle pinyon-----	5
80: Ormiston-----	Pinyon Juniper	1,200	1,000	700	Rocky Mountain juniper-----	10
					Twoneedle pinyon-----	5
					Gambel's oak-----	15
					Western wheatgrass-----	15
					Muttongrass-----	10
					Needlegrass-----	10
					Prairie junegrass-----	10
					Blue grama-----	10
					Black sagebrush-----	5
					Utah serviceberry-----	5
					Mountain muhly-----	5
Beje-----	Pinyon Juniper	1,100	900	700	Rocky Mountain juniper-----	10
					Twoneedle pinyon-----	5
					Gambel's oak-----	10
					Muttongrass-----	10
					Western wheatgrass-----	10
					True mountain mahogany-----	10
					Black sagebrush-----	10
					Utah serviceberry-----	5
					Needleandthread-----	5
					Blue grama-----	5
					Mountain brome-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
81: Ormiston-----	Ponderosa Pine	1,500	1,200	800	Ponderosa pine----- Mountain muhly----- Western wheatgrass----- Prairie junegrass----- Mountain brome----- Gambel's oak----- Common snowberry----- Woods' rose----- Utah serviceberry-----	5 20 20 15 10 10 5 5 5
Fivepine-----	Ponderosa Pine	1,200	800	600	Ponderosa pine----- Western wheatgrass----- Gambel's oak----- Mountain muhly----- Prairie junegrass----- Pine dropseed----- Rocky Mountain juniper----- Utah serviceberry----- Common snowberry----- Nodding brome-----	5 15 15 10 10 10 5 5 5 5
82: Ormiston-----	Mountain Clay	1,200	900	600	Western wheatgrass----- Arizona fescue----- Needlegrass----- Slender wheatgrass----- Utah serviceberry----- Mountain muhly----- Black sagebrush----- Muttongrass----- Gambel's oak-----	30 15 15 10 5 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
82: Granath-----	Mountain Loam	1,900	1,600	1,300	Western wheatgrass-----	10
					Arizona fescue-----	15
					Big sagebrush-----	5
					Mountain muhly-----	5
83: Ormiston-----	Mountain Clay	1,200	900	600	Western wheatgrass-----	10
					Gambel's oak-----	10
					Muttongrass-----	10
					Needlegrass-----	10
					Arizona fescue-----	10
					Utah serviceberry-----	5
					Black sagebrush-----	5
					Slender wheatgrass-----	5
					Mountain muhly-----	5
Nortez-----	Pine Grasslands	1,400	1,200	900	Arizona fescue-----	25
					Mountain muhly-----	10
					Ponderosa pine-----	10
					Parry's oatgrass-----	10
					Gambel's oak-----	5
					Mountain big sagebrush-----	5
					Mountain brome-----	3
					Prairie junegrass-----	3
					Antelope bitterbrush-----	2
84: Payter-----	Foothill Valley	1,500	1,200	800	Western wheatgrass-----	20
					Big sagebrush-----	10
					Blue grama-----	10
					Bottlebrush squirreltail-----	5
					Needleandthread-----	3

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
85: Pinacol-----	Ponderosa Pine	1,400	1,100	900	Ponderosa pine----- Arizona fescue----- Prairie junegrass----- Mountain muhly----- Gambel's oak----- Mountain brome----- Snowberry----- Saskatoon serviceberry----- Elk sedge----- True mountain mahogany-----	5 20 10 10 10 10 5 5 5 5
86: Pinacol-----	Ponderosa Pine	1,400	1,100	900	Ponderosa pine----- Arizona fescue----- Prairie junegrass----- Mountain muhly----- Gambel's oak----- Mountain brome----- Snowberry----- Saskatoon serviceberry----- Elk sedge----- True mountain mahogany-----	10 20 10 10 10 10 5 5 5 5
87: Pits-----	---	---	---	---	---	---
88: Pogo-----	Wet Meadow	4,000	3,000	2,000	Broadleaf cattail----- Sedge----- Rush----- Inland saltgrass-----	25 25 15 10
89: Pramiss-----	Mountain Clay	1,100	800	550	Western wheatgrass----- Arizona fescue----- Needlegrass----- Black sagebrush----- Gambel's oak----- Mountain muhly----- Prairie junegrass----- Slender wheatgrass-----	20 10 10 5 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
90:						
Pramiss-----	Mountain Clay	1,100	900	700	Western wheatgrass-----	20
					Needlegrass-----	10
					Arizona fescue-----	10
					Black sagebrush-----	5
					Gambel's oak-----	5
					Mountain muhly-----	5
Granath-----	Mountain Loam	1,900	1,600	1,300	Western wheatgrass-----	20
					Gambel's oak-----	20
					Arizona fescue-----	15
					Pine dropseed-----	10
					Big sagebrush-----	5
					Elk sedge-----	5
					Mountain muhly-----	5
					Muttongrass-----	5
					Antelope bitterbrush-----	5
91:						
Prater-----	Pinyon Juniper	1,200	1,000	800	Twoneedle pinyon-----	15
					Utah juniper-----	10
					Gambel's oak-----	15
					Western wheatgrass-----	15
					Muttongrass-----	10
					Indian ricegrass-----	5
					Big sagebrush-----	5
					True mountain mahogany-----	5
					Rabbitbrush-----	5
					Antelope bitterbrush-----	5
92:						
Prater-----	Pinyon Juniper	1,200	1,000	800	Twoneedle pinyon-----	15
					Utah juniper-----	10
					Gambel's oak-----	15
					Western wheatgrass-----	15
					Muttongrass-----	10
					Indian ricegrass-----	5
					Big sagebrush-----	5
					True mountain mahogany-----	5
					Rabbitbrush-----	5
					Antelope bitterbrush-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
92: Dolcan-----	Pinyon Juniper	700	500	400	Twoneedle pinyon-----	15
					Utah juniper-----	10
					Gambel's oak-----	15
					Western wheatgrass-----	15
					Muttongrass-----	10
					Indian ricegrass-----	5
					Big sagebrush-----	5
					True mountain mahogany-----	5
					Rabbitbrush-----	5
					Antelope bitterbrush-----	5
93: Pulpit-----	Loamy Foothills	1,125	800	600	Western wheatgrass-----	25
					Muttongrass-----	20
					Indian ricegrass-----	15
					Big sagebrush-----	10
					Rocky Mountain juniper-----	5
					Needleandthread-----	5
					Prairie junegrass-----	5
					Twoneedle pinyon-----	5
					Rabbitbrush-----	3
94: Pulpit-----	Loamy Foothills	1,125	800	600	Western wheatgrass-----	25
					Muttongrass-----	20
					Indian ricegrass-----	15
					Big sagebrush-----	10
					Needleandthread-----	5
					Small Douglas rabbitbrush-----	5
					Prairie junegrass-----	5
95: Pulpit-----	Loamy Foothills	1,125	800	600	Western wheatgrass-----	25
					Muttongrass-----	20
					Indian ricegrass-----	15
					Big sagebrush-----	10
					Needleandthread-----	5
					Small Douglas rabbitbrush-----	5
					Prairie junegrass-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
96: Purcella-----	Loamy Foothills	1,500	1,200	800	Western wheatgrass----- Muttongrass----- Big sagebrush----- Small Douglas rabbitbrush----- Indian ricegrass----- Needleandthread----- Utah serviceberry----- Prairie junegrass-----	25 20 10 5 5 5 5 5
97: Ramper-----	Loamy Bottom	1,200	900	700	Western wheatgrass----- Slender wheatgrass----- Big sagebrush----- Bottlebrush squirreltail----- Indian ricegrass----- Rubber rabbitbrush-----	20 15 15 10 5 5
98: Ramper-----	Loamy Bottom	1,200	900	700	Western wheatgrass----- Slender wheatgrass----- Big sagebrush----- Bottlebrush squirreltail----- Indian ricegrass----- Rubber rabbitbrush-----	20 15 15 10 5 5
99: Ravola-----	Alkali Bottom	800	600	400	Alkali sacaton----- Greasewood----- Inland saltgrass----- Basin big sagebrush----- Western wheatgrass----- Fourwing saltbush----- Galleta-----	25 15 10 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
100: Recapture-----	Alkali Flat	900	650	450	Alkali sacaton----- Greasewood----- Galleta----- Shadscale saltbush----- Fourwing saltbush----- Wyoming big sagebrush----- Indian ricegrass-----	25 20 10 5 5 5 5
101: Recapture-----	Alkali Bottom	650	525	375	Alkali sacaton----- Inland saltgrass----- Greasewood----- Shadscale saltbush----- Basin big sagebrush----- Fourwing saltbush----- Western wheatgrass-----	25 15 10 5 5 5 5
102: Ricot-----	Mountain Loam	1,800	1,500	1,200	Arizona fescue----- Western wheatgrass----- Saskatoon serviceberry----- Mountain big sagebrush----- Common snowberry----- Needlegrass-----	25 15 5 5 5 5
103: Ricot-----	Mountain Loam	1,800	1,500	1,200	Arizona fescue----- Western wheatgrass----- Saskatoon serviceberry----- Mountain big sagebrush----- Common snowberry----- Needlegrass-----	25 15 5 5 5 5
104: Ricot-----	Mountain Loam	1,800	1,500	1,200	Arizona fescue----- Western wheatgrass----- Saskatoon serviceberry----- Mountain big sagebrush----- Common snowberry----- Needlegrass-----	25 15 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
105: Rizno-----	Pinyon Juniper	650	500	350	Utah juniper----- Twoneedle pinyon----- Indian ricegrass----- Galleta----- Blue grama----- Western wheatgrass-----	15 5 15 15 10 10
Gapmesa-----	Semidesert Loam	750	600	450	Galleta----- Needleandthread----- Bottlebrush squirreltail----- Indian ricegrass----- Big sagebrush----- Blue grama----- Western wheatgrass----- Winterfat-----	15 15 10 10 10 5 5 2
106: Rizno-----	Semidesert Shallow Loam (Utah Juniper-Pinyon)	300	200	100	Utah juniper----- Twoneedle pinyon----- Mexican cliffrose----- Indian ricegrass----- Bottlebrush squirreltail----- Galleta-----	15 5 20 15 10 10
Littlenan-----	Alkali Fan (Castle Valley Saltbush)	300	225	130	Saltbush----- Galleta----- Shadscale saltbush----- Indian ricegrass----- Mormon tea-----	25 20 10 10 5
Bodry-----	Semidesert Shallow Clay (Utah Juniper-Pinyon)	500	350	200	Mexican cliffrose----- Salina wildrye----- Shadscale saltbush----- Galleta----- Indian ricegrass----- Bottlebrush squirreltail----- Mormon tea-----	20 15 15 10 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
107: Rizno-----	Semidesert Shallow Sandy Loam (Utah Juniper- Pinyon)	400	300	150	Utah juniper----- Twoneedle pinyon----- Blackbrush----- Mormon tea----- Indian ricegrass----- Galleta----- Needleandthread-----	15 5 35 10 5 5 5
Ruinpoint-----	Semidesert Loam (Wyoming Big Sagebrush)	800	600	400	Wyoming big sagebrush----- Indian ricegrass----- Galleta----- Blue grama----- Needleandthread-----	20 15 10 5 5
Rock outcrop-----	---	---	---	---	---	---
108: Rock outcrop-----	---	---	---	---	---	---
109: Romberg-----	Pinyon Juniper	500	350	200	Utah juniper----- Twoneedle pinyon----- Indian ricegrass----- Mountain mahogany----- Western wheatgrass----- Galleta----- Muttongrass----- Common snowberry----- Pinyon ricegrass----- Utah serviceberry-----	10 10 15 15 10 10 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
109: Crosscan-----	Pinyon Juniper	300	200	100	Utah juniper----- Twoneedle pinyon----- Indian ricegrass----- Mountain mahogany----- Western wheatgrass----- Galleta----- Muttongrass----- Common snowberry----- Utah serviceberry----- Pinyon ricegrass-----	10 10 15 15 10 10 5 5 5 5
110: Romberg-----	Pinyon Juniper	400	300	200	Utah juniper----- Twoneedle pinyon----- Indian ricegrass----- Mountain mahogany----- Western wheatgrass----- Galleta----- Muttongrass----- Common snowberry----- Utah serviceberry----- Pinyon ricegrass-----	10 10 15 15 10 10 5 5 5 5
Crosscan-----	Pinyon Juniper	300	200	100	Utah juniper----- Twoneedle pinyon----- Indian ricegrass----- Mountain mahogany----- Western wheatgrass----- Galleta----- Muttongrass----- Common snowberry----- Utah serviceberry----- Pinyon ricegrass-----	10 10 15 15 10 10 5 5 5 5
Rock outcrop-----	---	---	---	---	---	---

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
111: Roubideau-----	Loamy Mesa Top Pinyon Juniper	1,300	1,000	700	Twoneedle pinyon----- Utah juniper----- Muttongrass----- Mountain big sagebrush----- Indian ricegrass----- Bottlebrush squirreltail----- Antelope bitterbrush----- True mountain mahogany----- Yucca-----	5 5 20 15 10 5 5 5 5
112: Sharps-----	Loamy Foothills	1,200	900	700	Western wheatgrass----- Muttongrass----- Bottlebrush squirreltail----- Big sagebrush----- Indian ricegrass----- Galleta----- Black sagebrush-----	30 15 15 10 5 5 5
113: Sharps-----	Loamy Foothills	1,200	900	700	Western wheatgrass----- Muttongrass----- Bottlebrush squirreltail----- Big sagebrush----- Indian ricegrass----- Galleta----- Black sagebrush-----	30 15 15 10 5 5 5
114: Sharps, dry-----	Semidesert Loam	750	600	450	Galleta----- Wyoming big sagebrush----- New Mexico feathergrass----- Indian ricegrass----- Blue grama----- Bottlebrush squirreltail----- Rubber rabbitbrush----- Western wheatgrass-----	20 15 15 10 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
115: Sharps, dry-----	Semidesert Loam	750	600	450	Galleta-----	20
					Wyoming big sagebrush-----	15
					New Mexico feathergrass-----	15
					Indian ricegrass-----	10
					Blue grama-----	5
					Bottlebrush squirreltail-----	5
					Rubber rabbitbrush-----	5
					Western wheatgrass-----	5
Gapmesa-----	Semidesert Loam	750	600	450	Galleta-----	20
					New Mexico feathergrass-----	15
					Big sagebrush-----	15
					Indian ricegrass-----	10
					Blue grama-----	5
					Bottlebrush squirreltail-----	5
					Rabbitbrush-----	5
					Western wheatgrass-----	5
116: Sharps-----	Loamy Foothills	1,200	900	700	Western wheatgrass-----	30
					Muttongrass-----	15
					Bottlebrush squirreltail-----	15
					Big sagebrush-----	10
					Indian ricegrass-----	10
					Galleta-----	5
					Black sagebrush-----	5
Cahona-----	Loamy Foothills	1,500	1,000	800	Muttongrass-----	20
					Big sagebrush-----	15
					Western wheatgrass-----	15
					Bottlebrush squirreltail-----	5
					Rubber rabbitbrush-----	5
					Needleandthread-----	5
					Galleta-----	5
					Antelope bitterbrush-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
117: Sharps-----	Loamy Foothills	1,200	900	700	Muttongrass-----	20
					Big sagebrush-----	15
					Western wheatgrass-----	15
					Bottlebrush squirreltail-----	5
					Small Douglas rabbitbrush-----	5
					Needleandthread-----	5
					Galleta-----	5
					Antelope bitterbrush-----	5
Pulpit-----	Loamy Foothills	1,125	800	600	Western wheatgrass-----	25
					Muttongrass-----	20
					Indian ricegrass-----	15
					Big sagebrush-----	10
					Small Douglas rabbitbrush-----	5
					Needleandthread-----	5
					Prairie junegrass-----	5
118: Sharps-----	Loamy Foothills	1,200	900	700	Muttongrass-----	20
					Big sagebrush-----	15
					Western wheatgrass-----	15
					Bottlebrush squirreltail-----	5
					Small Douglas rabbitbrush-----	5
					Needleandthread-----	5
					Galleta-----	5
					Antelope bitterbrush-----	5
Pulpit-----	Loamy Foothills	1,125	800	600	Western wheatgrass-----	25
					Muttongrass-----	20
					Indian ricegrass-----	15
					Big sagebrush-----	10
					Small Douglas rabbitbrush-----	5
					Needleandthread-----	5
					Prairie junegrass-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
119: Sheek-----	Ponderosa pine	600	400	350	Ponderosa pine-----	5
					Gambel's oak-----	15
					Arizona fescue-----	10
					Prairie junegrass-----	10
					Mountain muhly-----	10
					Western wheatgrass-----	10
					Antelope bitterbrush-----	5
					Rocky Mountain juniper-----	5
					Snowberry-----	5
					Serviceberry-----	5
					Mountain brome-----	5
					Mountain mahogany-----	5
Archuleta-----	Ponderosa pine	500	350	300	Ponderosa pine-----	5
					Gambel's oak-----	15
					Arizona fescue-----	10
					Prairie junegrass-----	10
					Mountain muhly-----	10
					Western wheatgrass-----	10
					Antelope bitterbrush-----	5
					Rocky Mountain juniper-----	5
					Snowberry-----	5
					Serviceberry-----	5
					Mountain brome-----	5
					Mountain mahogany-----	5
120: Sheek-----	Ponderosa Pine	600	400	350	Ponderosa pine-----	10
					Douglas fir-----	10
					Gambel's oak-----	15
					Arizona fescue-----	10
					Prairie junegrass-----	10
					Mountain muhly-----	10
					Western wheatgrass-----	5
					Antelope bitterbrush-----	5
					Snowberry-----	5
					Serviceberry-----	5
					Mountain brome-----	5
					Mountain mahogany-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
120: Archuleta-----	Ponderosa Pine	500	350	300	Ponderosa pine-----	10
					Douglas fir-----	10
					Gambel's oak-----	15
					Arizona fescue-----	10
					Prairie junegrass-----	10
					Mountain muhly-----	10
					Western wheatgrass-----	10
					Antelope bitterbrush-----	5
					Snowberry-----	5
					Serviceberry-----	5
					Mountain brome-----	5
					Mountain mahogany-----	5
Rock outcrop-----	---	---	---	---	---	---
121: Sheek-----	Douglas Fir	700	550	450	Douglas fir-----	20
					Gambel's oak-----	15
					Arizona fescue-----	10
					Ponderosa pine-----	5
					Serviceberry-----	5
					Mountain brome-----	5
					Mountain mahogany-----	5
					Prairie junegrass-----	5
					Antelope bitterbrush-----	5
					Mountain muhly-----	5
					Snowberry-----	5
					Western wheatgrass-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
121: Archuleta-----	Douglas Fir	600	500	400	Douglas fir-----	20
					Gambel's oak-----	15
					Ponderosa pine-----	5
					Parry's oatgrass-----	5
					Arizona fescue-----	5
					Prairie junegrass-----	5
					Mountain muhly-----	5
					Western wheatgrass-----	5
					Antelope bitterbrush-----	5
					Mountain brome-----	5
					Mountain mahogany-----	5
					Serviceberry-----	5
					Snowberry-----	---
Rock outcrop-----	---	---	---	---	---	---
122: Sheppard-----	Desert Sand	900	550	350	Alkali sacaton-----	35
					Fourwing saltbush-----	15
					Indian ricegrass-----	10
					Western wheatgrass-----	5
					Galleta-----	5
					Sand dropseed-----	5
					Mesa dropseed-----	5
123: Sideshow-----	Alkali Bottom	400	300	200	Alkali sacaton-----	25
					Greasewood-----	15
					Inland saltgrass-----	10
					Fourwing saltbush-----	5
					Western wheatgrass-----	5
					Basin big sagebrush-----	5
124: Sideshow-----	Clayey Foothills	1,200	900	600	Western wheatgrass-----	50
					Big sagebrush-----	20
					Indian ricegrass-----	5
125: Sideshow-----	Clayey Foothills	1,200	900	600	Western wheatgrass-----	50
					Big sagebrush-----	20
					Indian ricegrass-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
126: Sideshow-----	Clayey Foothills	1,200	900	600	Western wheatgrass----- Big sagebrush----- Indian ricegrass-----	50 20 5
Zigzag-----	Pinyon Juniper	600	400	300	Twoneedle pinyon----- Utah juniper----- Big sagebrush----- Indian ricegrass----- Muttongrass----- Western wheatgrass----- Antelope bitterbrush----- Serviceberry----- True mountain mahogany----- Bottlebrush squirreltail----- Needleandthread-----	15 5 15 15 10 10 5 5 5 5 5
127: Sideslide-----	Salt Meadow	2,500	2,000	1,500	Alkali sacaton----- Western wheatgrass----- Inland saltgrass----- Sedge----- Rush----- Fourwing saltbush----- Greasewood-----	40 10 10 10 5 5 5
128: Stephouse-----	Shallow Loamy Mesa Top Pinyon Juniper	750	450	250	Twoneedle pinyon----- Utah juniper----- Muttongrass----- Indian ricegrass----- Utah serviceberry----- True mountain mahogany----- Bottlebrush squirreltail----- Antelope bitterbrush-----	5 5 15 10 5 5 5 5
Rock outcrop-----	---	---	---	---	---	---

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
129: Torriorthents-----	Salt-desert Breaks	400	300	200	Galleta----- Shadscale saltbush----- Salina wildrye----- Alkali sacaton----- Indian ricegrass----- Bottlebrush squirreltail-----	20 20 10 10 5 5
130: Torriorthents-----	Clayey Salt-desert	400	300	200	Shadscale saltbush----- Galleta----- Salina wildrye----- Alkali sacaton----- Indian ricegrass----- Bottlebrush squirreltail-----	20 20 10 10 5 5
Badland-----	---	---	---	---	---	---
131: Tragmon-----	Brushy Loam	3,500	2,200	1,700	Gambel's oak----- Serviceberry----- Sagebrush----- Prairie junegrass----- Western wheatgrass----- Muttongrass----- Snowberry-----	10 10 5 5 5 5 5
Sheek-----	Brushy Loam	3,000	2,000	1,500	Gambel's oak----- Serviceberry----- Arizona fescue----- Prairie junegrass----- Mountain muhly----- Western wheatgrass----- Antelope bitterbrush----- Mountain mahogany----- Snowberry----- Mountain brome-----	10 10 10 10 10 5 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
132: Typic Argiaquolls-----	Wet Meadow	4,000	3,000	2,000	Sedge-----	45
					Rush-----	10
					Tufted hairgrass-----	10
					broadleaf cattail-----	5
133: Typic Torriorthents-----	Salt-desert Breaks	500	350	200	Salina wildrye-----	20
					Shadscale saltbush-----	20
					Galleta-----	20
					Alkali sacaton-----	10
					Indian ricegrass-----	5
					Big sagebrush-----	5
					Fourwing saltbush-----	5
					Bottlebrush squirreltail-----	5
					Utah juniper-----	5
Rock outcrop-----	---	---	---	---	---	---
134: Umbarg-----	Wet Meadow	3,000	2,600	2,300	Baltic rush-----	15
					Sedge-----	15
					Western wheatgrass-----	15
					Foxtail barley-----	10
Winner-----	Wet Meadow	2,500	2,000	1,500	Sedge-----	30
					Mountain brome-----	10
					Tufted hairgrass-----	5
Tesajo-----	Wet Meadow	2,500	2,000	1,500	Sedge-----	20
					Mountain brome-----	10
					Tufted hairgrass-----	5
					Rocky Mountain iris-----	5
135: Ustic Torrifluvents-----	Loamy Bottom	950	800	600	Big sagebrush-----	15
					Western wheatgrass-----	15
					Galleta-----	15
					Alkali sacaton-----	10
					Indian ricegrass-----	10
					Rubber rabbitbrush-----	5
					Greasewood-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
136: Ustic Torriorthents-----	Alkali Bottom	1,000	700	500	Alkali sacaton----- Greasewood----- Western wheatgrass----- Galleta----- Saltbush----- Fourwing saltbush----- Big sagebrush-----	25 10 5 5 5 5 5
Gullied land-----	---	---	---	---	---	---
137: Ustorthents-----	Pinyon Juniper	700	600	500	Twoneedle pinyon----- Utah juniper----- Big sagebrush----- Muttongrass----- Western wheatgrass----- Indian ricegrass-----	15 15 20 10 10 5
138: Uzacol-----	Clayey Saltdesert	625	450	250	Shadscale saltbush----- Galleta----- Saline wildrye----- Alkali sacaton----- Indian ricegrass----- Bottlebrush squirreltail-----	30 20 10 10 5 5
Zwicker-----	Clayey Saltdesert	500	350	200	Shadscale saltbush----- Galleta----- Saline wildrye----- Alkali sacaton----- Indian ricegrass----- Bottlebrush squirreltail-----	30 20 10 10 5 5
Claysprings-----	Clayey Saltdesert	375	250	150	Shadscale saltbush----- Galleta----- Saline wildrye----- Alkali sacaton----- Indian ricegrass----- Bottlebrush squirreltail-----	30 20 10 10 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
139: Water-----	---	---	---	---	---	---
140: Wauquie-----	Pinyon Juniper	1,000	800	600	Twoneedle pinyon----- Utah juniper----- Gambel's oak----- Western wheatgrass----- Muttongrass----- True mountain mahogany----- Indian ricegrass----- Big sagebrush----- Antelope bitterbrush-----	10 10 15 15 10 10 5 5 5
141: Wauquie-----	Pinyon Juniper	1,300	1,000	700	Twoneedle pinyon----- Utah juniper----- Gambel's oak----- True mountain mahogany----- Muttongrass----- Western wheatgrass----- Indian ricegrass----- Big sagebrush----- Antelope bitterbrush-----	15 5 15 10 10 10 5 5 5
Dolcan-----	Pinyon Juniper	600	500	400	Twoneedle pinyon----- Utah juniper----- Indian ricegrass----- Mountain mahogany----- Western wheatgrass----- Galleta----- Utah serviceberry----- Pinyon ricegrass----- Common snowberry----- Muttongrass-----	15 5 15 15 10 10 5 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
142: Wauquie-----	Pinyon Juniper	1,100	900	700	Twoneedle pinyon----- Utah juniper----- Gambel's oak----- True mountain mahogany----- Western wheatgrass----- Muttongrass----- Indian ricegrass----- Big sagebrush----- Antelope bitterbrush-----	15 5 15 10 10 10 5 5 5
Dolcan-----	Pinyon Juniper	600	500	400	Twoneedle pinyon----- Utah juniper----- Mountain mahogany----- Indian ricegrass----- Western wheatgrass----- Galleta----- Pinyon ricegrass----- Utah serviceberry----- Common snowberry----- Muttongrass-----	15 5 15 15 10 10 5 5 5 5
Rock outcrop-----	---	---	---	---	---	---
143: Wetherill-----	Loamy Foothills	1,500	1,200	800	Muttongrass----- Western wheatgrass----- Big sagebrush----- Bottlebrush squirreltail----- Needleandthread----- Indian ricegrass-----	30 30 15 5 5 5
144: Wetherill-----	Loamy Foothills	1,500	1,200	800	Muttongrass----- Western wheatgrass----- Big sagebrush----- Bottlebrush squirreltail----- Needleandthread----- Indian ricegrass-----	30 30 15 5 5 5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
145: Wetherill-----	Loamy Foothills	1,400	1,100	700	Muttongrass-----	30
					Western wheatgrass-----	30
					Big sagebrush-----	15
					Bottlebrush squirreltail-----	5
					Needleandthread-----	5
					Indian ricegrass-----	5
146: Yarts-----	Semidesert Loam	900	700	500	Galleta-----	20
					New Mexico feathergrass-----	15
					Big sagebrush-----	15
					Indian ricegrass-----	5
					Blue grama-----	5
					Western wheatgrass-----	5
147: Yarts-----	Semidesert Loam	900	700	500	Galleta-----	20
					New Mexico feathergrass-----	15
					Wyoming big sagebrush-----	15
					Indian ricegrass-----	5
					Blue grama-----	5
					Western wheatgrass-----	5
148: Zau-----	Brushy Loam	3,000	2,500	2,000	Arizona fescue-----	20
					Gambel's oak-----	15
					Needleandthread-----	15
					Parry's oatgrass-----	10
					Mountain brome-----	10
					Snowberry-----	10
					Mountain muhly-----	5
					Western wheatgrass-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
149: Zigzag-----	Pinyon Juniper	600	400	300	Twoneedle pinyon-----	15
					Utah juniper-----	5
					Indian ricegrass-----	15
					Big sagebrush-----	15
					Muttongrass-----	10
					True mountain mahogany-----	5
					Western wheatgrass-----	5
					Serviceberry-----	5
					Antelope bitterbrush-----	5
					Bottlebrush squirreltail-----	5
					Needleandthread-----	5
150: Zigzag-----	Pinyon Juniper	600	400	300	Twoneedle pinyon-----	15
					Utah juniper-----	5
					Indian ricegrass-----	15
					Big sagebrush-----	15
					Western wheatgrass-----	10
					Muttongrass-----	10
					Antelope bitterbrush-----	5
					True mountain mahogany-----	5
					Bottlebrush squirreltail-----	5
					Needleandthread-----	5
					Serviceberry-----	5
Sideshow-----	Clayey Foothills	1,200	900	600	Western wheatgrass-----	50
					Big sagebrush-----	20
					Indian ricegrass-----	5
					Bottlebrush squirreltail-----	5
					Rubber rabbitbrush-----	5
					Prairie junegrass-----	5

Table 7.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
151: Zyme-----	Shale Knobs	500	300	200	Indian ricegrass-----	15
					Galleta-----	15
					Western wheatgrass-----	15
					Black sagebrush-----	10
					Big sagebrush-----	5
					Fourwing saltbush-----	5
					Bottlebrush squirreltail-----	5
					Needleandthread-----	5
152: Zyme-----	Shale Knobs	500	300	200	Galleta-----	15
					Indian ricegrass-----	15
					Western wheatgrass-----	15
					Black sagebrush-----	10
					Big sagebrush-----	5
					Fourwing saltbush-----	5
					Bottlebrush squirreltail-----	5
					Needleandthread-----	5

Table 8.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1: Ackmen-----	Severe: flooding	Slight	Moderate: slope	Slight	Slight
2: Ackmen-----	Severe: flooding	Slight	Moderate: slope	Slight	Slight
3: Arabrab-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
4: Arabrab-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
Longburn-----	Severe: depth to rock	Severe: depth to rock	Severe: large stones slope small stones	Moderate: large stones	Severe: large stones depth to rock
5: Archuleta-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: erodes easily slope	Severe: slope depth to rock
Sanchez-----	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: slope small stones depth to rock
6: Argiustolls-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: slope small stones	Severe: large stones slope small stones
Haplustalfs-----	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: large stones slope small stones
7: Argiustolls-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: slope small stones	Severe: large stones slope small stones
Haplustalfs-----	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: large stones slope small stones

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
7: Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
8: Barx-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
9: Barx-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Moderate: dusty	Moderate: slope
10: Barx-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Severe: erodes easily	Slight
11: Barx-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
Gapmesa-----	Slight	Slight	Moderate: slope depth to rock	Slight	Moderate: depth to rock
12: Battlerock-----	Severe: flooding	Slight	Moderate: slope	Slight	Slight
13: Beje-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
Tragmon-----	Slight	Slight	Severe: slope	Slight	Moderate: large stones
14: Burnson-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
15: Burnson, dry-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
16: Burnson-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Herm-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
17: Cahona-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Severe: erodes easily	Slight

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
18: Cahona-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Severe: erodes easily	Slight
19: Cahona-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope
20: Cahona-----	Moderate: dusty	Moderate: dusty	Severe: slope	Severe: erodes easily	Slight
Pulpit-----	Moderate: dusty	Moderate: dusty	Severe: slope	Severe: erodes easily	Moderate: depth to rock
21: Cahona-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Severe: erodes easily	Slight
Sharps-----	Moderate: dusty	Moderate: dusty	Moderate: slope small stones depth to rock	Severe: erodes easily	Moderate: depth to rock
Wetherill-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Severe: erodes easily	Slight
22: Claysprings-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: slope depth to rock
23: Collide-----	Slight	Slight	Moderate: slope small stones	Slight	Slight
24: Collide-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
25: Collide-----	Slight	Slight	Moderate: small stones	Slight	Slight
Collide, cobbly substratum-----	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
26: Collide-----	Slight	Slight	Moderate: slope small stones	Slight	Slight

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
26: Collide, cobbly substratum-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
27: Dalmatian-----	Severe: flooding	Slight	Moderate: slope	Slight	Slight
Apmay-----	Severe: flooding wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness
Schrader-----	Severe: flooding wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Moderate: flooding wetness
28: Dam-----	---	---	---	---	---
29: Endoaquolls-----	Severe: flooding wetness	Severe: wetness	Severe: flooding wetness	Severe: wetness	Severe: flooding wetness
Ustifluvents-----	Severe: flooding	Slight	Moderate: flooding slope small stones	Slight	Moderate: large stones droughty
30: Falconry-----	Severe: depth to rock	Severe: depth to rock	Severe: slope small stones depth to rock	Slight	Severe: depth to rock
31: Farb-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
Rock outcrop-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
32: Fardraw-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: large stones slope droughty
33: Fardraw-----	Severe: large stones small stones	Severe: large stones small stones	Severe: large stones small stones	Severe: large stones	Severe: large stones small stones

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
34: Fardraw-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones	Severe: large stones slope small stones
35: Fardraw-----	Severe: large stones small stones	Severe: large stones small stones	Severe: large stones slope small stones	Severe: large stones	Severe: large stones small stones
Granath-----	Slight	Slight	Severe: slope	Slight	Slight
36: Fivepine-----	Severe: depth to rock	Severe: depth to rock	Severe: large stones slope depth to rock	Slight	Severe: depth to rock
Nortez-----	Slight	Slight	Severe: slope	Slight	Moderate: depth to rock
37: Fluvaquents-----	Severe: flooding wetness	Moderate: flooding wetness	Severe: small stones wetness	Moderate: flooding wetness	Severe: flooding
Haplustolls-----	Severe: flooding	Slight	Moderate: slope small stones	Slight	Moderate: droughty
38: Fluvents-----	Severe: flooding	Slight	Moderate: flooding	Slight	Severe: droughty
Fluvaquents-----	Severe: flooding wetness	Moderate: flooding wetness	Severe: small stones wetness	Moderate: flooding wetness	Severe: flooding
39: Fughes-----	Slight	Slight	Severe: slope	Slight	Slight
40: Fughes-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Herm-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
41: Fughes-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Sheek-----	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones	Severe: large stones	Severe: large stones slope

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
42: Gladel-----	Severe: depth to rock	Severe: depth to rock	Severe: large stones slope small stones	Moderate: large stones	Severe: depth to rock
Pulpit-----	Moderate: dusty	Moderate: dusty	Severe: slope	Severe: erodes easily	Moderate: depth to rock
43: Goldbug-----	Severe: slope	Severe: slope	Severe: large stones slope	Moderate: large stones slope	Severe: slope
44: Granath-----	Slight	Slight	Moderate: slope	Slight	Slight
45: Granath-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
46: Granath-----	Slight	Slight	Severe: slope	Slight	Slight
Fughes-----	Slight	Slight	Severe: slope	Slight	Slight
47: Granath-----	Slight	Slight	Severe: slope	Slight	Slight
Nortez-----	Slight	Slight	Severe: slope	Slight	Moderate: depth to rock
48: Granath-----	Slight	Slight	Severe: slope	Slight	Slight
Ormiston-----	Slight	Slight	Severe: slope	Slight	Moderate: large stones droughty
Fivepine-----	Severe: depth to rock	Severe: depth to rock	Severe: large stones slope depth to rock	Slight	Severe: depth to rock
49: Herm-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
50: Herm-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope	Severe: large stones slope small stones

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
51: Herm-----	Slight	Slight	Severe: slope	Slight	Slight
Pagoda-----	Slight	Slight	Severe: slope	Slight	Slight
52: Hesperus-----	Slight	Slight	Slight	Slight	Slight
53: Hesperus-----	Slight	Slight	Moderate: slope	Slight	Slight
54: Hesperus-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
55: Hesperus-----	Slight	Slight	Severe: slope	Slight	Slight
56: Ilex-----	Slight	Slight	Severe: slope	Slight	Slight
57: Ilex-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
58: Ilex-----	Slight	Slight	Moderate: slope	Slight	Slight
Granath-----	Slight	Slight	Moderate: slope	Slight	Slight
59: Ilex-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Granath-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
60: Ilex-----	Moderate: slope small stones	Moderate: slope small stones	Severe: slope small stones	Slight	Moderate: large stones slope small stones
Pramiss-----	Moderate: large stones slope	Moderate: large stones slope	Severe: large stones slope small stones	Moderate: large stones	Severe: large stones
Falconry-----	Severe: depth to rock	Severe: depth to rock	Severe: slope small stones depth to rock	Slight	Severe: depth to rock

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
61: Ilex-----	Slight	Slight	Moderate: slope	Slight	Slight
Pramiss-----	Slight	Slight	Moderate: slope depth to rock	Slight	Moderate: large stones depth to rock
Granath-----	Slight	Slight	Moderate: slope	Slight	Slight
62: Irak-----	Severe: flooding wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness
63: Jemco-----	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
Detra-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
63: Beje-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
64: Lazear-----	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: slope small stones depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
65: Lillings-----	Severe: excess salt flooding	Severe: excess salt	Severe: excess salt	Moderate: dusty	Severe: excess salt
66: Lillings-----	Severe: excess salt flooding	Severe: excess salt	Severe: excess salt	Slight	Severe: excess salt
67: Lillings-----	Severe: excess salt flooding	Severe: excess salt	Severe: excess salt	Slight	Severe: excess salt
68: Longburn-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: large stones slope depth to rock

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
68: Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
69: Longburn-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: large stones slope depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
70: Mack-----	Slight	Slight	Moderate: slope small stones	Slight	Slight
71: Mikett-----	Severe: excess sodium wetness	Severe: excess sodium	Severe: excess sodium wetness	Moderate: wetness	Severe: excess sodium
72: Mikett-----	Moderate: excess salt	Moderate: excess salt	Moderate: excess salt	Slight	Moderate: excess salt
73: Mikim-----	Moderate: excess salt	Moderate: excess salt	Moderate: excess salt slope	Slight	Moderate: excess salt
74: Mikim-----	Severe: excess sodium excess salt	Severe: excess sodium excess salt	Severe: excess sodium excess salt	Slight	Severe: excess sodium excess salt
75: Mikim-----	Moderate: dusty excess salt	Moderate: dusty excess salt	Moderate: dusty excess salt slope	Moderate: dusty	Moderate: excess salt
76: Morefield-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
77: Morefield-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
78: Nortez-----	Slight	Slight	Moderate: slope small stones depth to rock	Slight	Moderate: depth to rock
Granath-----	Slight	Slight	Moderate: slope	Slight	Slight
79: Northrim-----	Severe: slope	Severe: slope	Severe: large stones slope small stones	Severe: slope	Severe: large stones slope
80: Ormiston-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Beje-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: slope depth to rock
81: Ormiston-----	Slight	Slight	Severe: slope	Slight	Moderate: large stones droughty
Fivepine-----	Severe: depth to rock	Severe: depth to rock	Severe: large stones slope depth to rock	Slight	Severe: depth to rock
82: Ormiston-----	Severe: large stones small stones	Severe: large stones small stones	Severe: large stones slope small stones	Severe: large stones small stones	Severe: large stones small stones
Granath-----	Slight	Slight	Severe: slope	Slight	Slight
83: Ormiston-----	Severe: large stones small stones	Severe: large stones small stones	Severe: large stones slope small stones	Severe: large stones small stones	Severe: large stones small stones
Nortez-----	Slight	Slight	Severe: slope	Slight	Moderate: depth to rock
84: Payter-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
85: Pinacol-----	Slight	Slight	Severe: slope	Slight	Moderate: large stones droughty

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
86: Pinacol-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
87: Pits-----	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
88: Pogo-----	Severe: flooding wetness	Severe: wetness	Severe: flooding wetness	Severe: wetness	Severe: flooding wetness
89: Pramiss-----	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones	Moderate: large stones slope	Severe: large stones slope
90: Pramiss-----	Slight	Slight	Severe: slope	Slight	Moderate: large stones depth to rock
Granath-----	Slight	Slight	Severe: slope	Slight	Slight
91: Prater-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
92: Prater-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Dolcan-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones
93: Pulpit-----	Moderate: dusty	Moderate: dusty	Severe: slope	Severe: erodes easily	Moderate: depth to rock
94: Pulpit-----	Moderate: dusty	Moderate: dusty	Moderate: slope depth to rock	Severe: erodes easily	Moderate: depth to rock
95: Pulpit-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
96: Purcella-----	Moderate: dusty	Moderate: dusty	Moderate: dusty small stones	Moderate: dusty	Moderate: droughty

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
97: Ramper-----	Severe: flooding	Slight	Moderate: small stones	Slight	Slight
98: Ramper-----	Severe: flooding	Moderate: dusty	Moderate: dusty small stones	Moderate: dusty	Slight
99: Ravola-----	Severe: excess salt	Severe: excess salt	Severe: excess salt	Slight	Severe: excess salt
100: Recapture-----	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
101: Recapture-----	Severe: excess sodium excess salt flooding	Severe: excess sodium excess salt	Severe: excess sodium excess salt	Slight	Severe: excess sodium excess salt
102: Ricot-----	Slight	Slight	Moderate: slope small stones	Slight	Slight
103: Ricot-----	Slight	Slight	Moderate: slope small stones	Slight	Slight
104: Ricot-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
105: Rizno-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
Gapmesa-----	Slight	Slight	Severe: slope	Slight	Moderate: depth to rock
106: Rizno-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
106: Littlenan-----	Moderate: dusty slope small stones	Moderate: dusty slope small stones	Severe: slope small stones	Moderate: dusty	Moderate: large stones slope small stones
Bodry-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope	Severe: large stones slope small stones

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
107: Rizno-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
Ruinpoint-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
Rock outcrop-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
108: Rock outcrop-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
109: Romberg-----	Severe: slope	Severe: slope	Severe: large stones slope small stones	Moderate: dusty slope	Moderate: large stones small stones droughty
Crosscan-----	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: large stones slope small stones	Moderate: large stones slope	Severe: large stones slope small stones
110: Romberg-----	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones	Severe: slope	Severe: large stones small stones
Crosscan-----	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: large stones slope small stones
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
111: Roubideau-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope depth to rock	Moderate: dusty	Moderate: depth to rock
112: Sharps-----	Moderate: dusty	Moderate: dusty	Moderate: slope small stones depth to rock	Severe: erodes easily	Moderate: depth to rock
113: Sharps-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
114: Sharps, dry-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
115: Sharps, dry-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
Gapmesa-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope depth to rock
116: Sharps-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
Cahona-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope
117: Sharps-----	Moderate: dusty	Moderate: dusty	Moderate: slope small stones depth to rock	Severe: erodes easily	Moderate: depth to rock
Pulpit-----	Moderate: dusty	Moderate: dusty	Moderate: slope depth to rock	Severe: erodes easily	Moderate: depth to rock
118: Sharps-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
Pulpit-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
119: Sheek-----	Severe: slope small stones	Severe: slope small stones	Severe: large stones slope small stones	Moderate: large stones slope	Severe: large stones slope small stones
Archuleta-----	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: large stones slope small stones	Moderate: large stones slope	Severe: large stones small stones depth to rock
120: Sheek-----	Severe: slope small stones	Severe: slope small stones	Severe: large stones slope small stones	Severe: slope	Severe: large stones slope small stones

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
120: Archuleta-----	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: large stones small stones depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
121: Sheek-----	Severe: slope small stones	Severe: slope small stones	Severe: large stones slope small stones	Severe: slope	Severe: large stones slope small stones
Archuleta-----	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: large stones small stones depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
122: Sheppard-----	Severe: too sandy	Severe: too sandy	Severe: too sandy	Severe: too sandy	Moderate: droughty
123: Sideshow-----	Slight	Slight	Slight	Slight	Slight
124: Sideshow-----	Slight	Slight	Moderate: slope	Slight	Slight
125: Sideshow-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
126: Sideshow-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Zigzag-----	Severe: small stones depth to rock	Severe: small stones depth to rock	Severe: slope small stones depth to rock	Severe: small stones	Severe: small stones depth to rock
127: Sideslide-----	Moderate: percs slowly wetness	Moderate: percs slowly wetness	Severe: slope	Slight	Slight
128: Stephouse-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
128: Rock outcrop-----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
129: Torriorthents-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope	Severe: large stones slope small stones
130: Torriorthents-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope	Severe: large stones slope small stones
Badland-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
131: Tragmon-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Sheek-----	Severe: slope	Severe: slope	Severe: large stones slope small stones	Moderate: large stones slope	Severe: large stones slope
132: Typic Argiaquolls-----	Severe: flooding wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
133: Typic Torriorthents----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope	Severe: large stones slope small stones
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
134: Umbarg-----	Severe: flooding	Slight	Moderate: small stones	Slight	Slight
Winner-----	Severe: flooding wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
Tesajo-----	Severe: flooding	Moderate: small stones	Severe: small stones	Slight	Severe: droughty
135: Ustic Torrifluvents----	Severe: flooding	Moderate: excess salt	Moderate: excess salt	Slight	Moderate: excess salt droughty

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
136: Ustic Torriorthents----	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
Gullied land-----	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
137: Ustorthents-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope	Severe: large stones slope small stones
138: Uzacol-----	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium slope	Slight	Severe: excess sodium
Zwicker-----	Moderate: small stones	Moderate: small stones	Severe: slope small stones	Slight	Moderate: large stones small stones
Claysprings-----	Severe: depth to rock	Severe: depth to rock	Severe: large stones slope small stones	Slight	Severe: depth to rock
139: Water-----	---	---	---	---	---
140: Wauquie-----	Severe: slope small stones	Severe: slope small stones	Severe: large stones slope small stones	Moderate: large stones slope	Severe: slope small stones
141: Wauquie-----	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: large stones slope	Severe: slope
Dolcan-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones small stones	Severe: large stones slope small stones
142: Wauquie-----	Severe: slope	Severe: slope	Severe: slope small stones	Severe: slope	Severe: slope
Dolcan-----	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
143: Wetherill-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Severe: erodes easily	Slight
144: Wetherill-----	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Severe: erodes easily	Slight
145: Wetherill-----	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope
146: Yarts-----	Slight	Slight	Moderate: slope	Slight	Slight
147: Yarts-----	Slight	Slight	Moderate: slope	Slight	Slight
148: Zau-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
149: Zigzag-----	Severe: small stones depth to rock	Severe: small stones depth to rock	Severe: slope small stones depth to rock	Severe: small stones	Severe: small stones depth to rock
150: Zigzag-----	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: slope small stones	Severe: slope small stones depth to rock
Sideshow-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
151: Zyme-----	Severe: depth to rock	Severe: depth to rock	Severe: slope small stones	Slight	Severe: depth to rock
152: Zyme-----	Severe: slope small stones	Severe: slope small stones	Severe: slope small stones	Severe: slope small stones	Severe: slope small stones

Table 9.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
1: Ackmen-----	Fair	Fair	Fair	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Fair
2: Ackmen-----	Fair	Fair	Fair	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Fair
3: Arabrab-----	Very poor	Very poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
4: Arabrab-----	Very poor	Very poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
Longburn-----	Very poor	Very poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
5: Archuleta-----	Very poor	Very poor	Fair	Fair	Good	Very poor	Very poor	Poor	Fair	Very poor	Fair
Sanchez-----	Very poor	Very poor	Fair	Fair	Good	Very poor	Very poor	Poor	Poor	Very poor	Fair
6: Argiustolls-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Very poor	Good	Very poor	Good
Haplustalfs-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Very poor	Good	Very poor	Good
7: Argiustolls-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Very poor	Fair	Very poor	Good
Haplustalfs-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Very poor	Good	Very poor	Good
Rock outcrop-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
8: Barx-----	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
9: Barx-----	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor
10: Barx-----	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
11: Barx-----	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor
Gapmesa-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
12: Battlerock-----	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor
13: Beje-----	Very poor	Very poor	Fair	Poor	Good	Very poor	Very poor	Poor	Poor	Very poor	Fair
Tragmon-----	Fair	Good	Fair	Good	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
14: Burnson-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
15: Burnson, dry-----	Poor	Poor	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
16: Burnson-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
Herm-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
17: Cahona-----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor	Fair

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
18: Cahona-----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor	Fair
19: Cahona-----	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
20: Cahona-----	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
Pulpit-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
21: Cahona-----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor	Fair
Sharps-----	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
Wetherill-----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor	Fair
22: Claysprings-----	Very poor	Very poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Poor
23: Collide-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
24: Collide-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
25: Collide-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
Collide, cobbly substratum-----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor	Fair
26: Collide-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
26: Collide, cobbly substratum-----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor	Fair
27: Dalmatian-----	Poor	Fair	Good	Good	Good	Fair	Poor	Fair	Good	Poor	Good
Apmay-----	Poor	Fair	Good	Good	Good	Fair	Poor	Fair	Good	Poor	Good
Schrader-----	Fair	Fair	Poor	Poor	Poor	Good	Good	Fair	Poor	Good	Fair
28: Dam-----	---	---	---	---	---	---	---	---	---	---	---
29: Endoaquolls-----	Poor	Poor	Fair	Good	Fair	Fair	Poor	Poor	Fair	Poor	Fair
Ustifluvents-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
30: Falconry-----	Poor	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
31: Farb-----	Very poor	Very poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Poor
Rock outcrop-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
32: Fardraw-----	Poor	Poor	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
33: Fardraw-----	Very poor	Very poor	Very poor	Good	Good	Poor	Poor	Very poor	Fair	Very poor	Poor
34: Fardraw-----	Very poor	Very poor	Very poor	Good	Good	Poor	Poor	Very poor	Fair	Very poor	Poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
35:											
Fardraw-----	Very poor	Very poor	Very poor	Good	Good	Poor	Poor	Very poor	Fair	Very poor	Poor
Granath-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
36:											
Fivepine-----	Poor	Poor	Good	Poor	Good	Poor	Very poor	Fair	Poor	Very poor	Good
Nortez-----	Poor	Poor	Good	Fair	Good	Poor	Very poor	Fair	Fair	Poor	Good
37:											
Fluvaquents-----	Very poor	Very poor	Fair	Poor	Poor	Fair	Fair	Poor	Poor	Fair	Poor
Haplustolls-----	Poor	Poor	Fair	Fair	Good	Poor	Very poor	Poor	Fair	Very poor	Fair
38:											
Fluvents-----	Poor	Poor	Poor	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Poor
Fluvaquents-----	Poor	Poor	Fair	Poor	Poor	Fair	Fair	Poor	Poor	Fair	Poor
39:											
Fughes-----	Fair	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
40:											
Fughes-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
Herm-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
41:											
Fughes-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor	Good
Sheek-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Fair	Very poor	Good

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
42: Gladel-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
Pulpit-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
43: Goldbug-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor	Good
44: Granath-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
45: Granath-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
46: Granath-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
Fughes-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Poor	Good
47: Granath-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
Nortez-----	Poor	Poor	Good	Fair	Good	Poor	Very poor	Fair	Fair	Poor	Good
48: Granath-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
Ormiston-----	Poor	Poor	Good	Fair	Good	Poor	Very poor	Good	Good	Very poor	Good
Fivepine-----	Poor	Poor	Good	Poor	Good	Poor	Very poor	Fair	Poor	Very poor	Good
49: Herm-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
50: Herm-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor	Good
51: Herm-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
Pagoda-----	Poor	Poor	Good	Good	Good	Poor	Poor	Poor	Good	Poor	Good
52: Hesperus-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
53: Hesperus-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
54: Hesperus-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
55: Hesperus-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
56: Ilex-----	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
57: Ilex-----	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
58: Ilex-----	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
Granath-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
59: Ilex-----	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
Granath-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
60:											
Ilex-----	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
Pramiss-----	Poor	Poor	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
Falconry-----	Poor	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
61:											
Ilex-----	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
Pramiss-----	Poor	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
Granath-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
62:											
Irak-----	Fair	Fair	Good	Poor	Poor	Good	Fair	Fair	Poor	Fair	Fair
63:											
Jemco-----	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
Detra-----	Fair	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
Beje-----	Poor	Poor	Fair	Poor	Good	Very poor	Very poor	Poor	Poor	Very poor	Fair
64:											
Lazear-----	Very poor	Very poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Poor	Very poor	---
Rock outcrop-----	---	---	---	---	---	---	---	---	---	---	---
65:											
Lillings-----	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor
66:											
Lillings-----	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
67: Lillings-----	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor
68: Longburn-----	Very poor	Very poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
Rock outcrop-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
69: Longburn-----	Very poor	Very poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
Rock outcrop-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
70: Mack-----	Very poor	Very poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Very poor	Poor
71: Mikett-----	Poor	Poor	Very poor	Poor	Poor	Fair	Fair	Poor	Poor	Fair	Poor
72: Mikett-----	Poor	Poor	Very poor	Poor	Poor	Fair	Fair	Poor	Poor	Fair	Poor
73: Mikim-----	Poor	Poor	Poor	Fair	Fair	Poor	Very poor	Poor	Fair	Very poor	Poor
74: Mikim-----	Poor	Poor	Very poor	Fair	Fair	Poor	Very poor	Poor	Fair	Very poor	Poor
75: Mikim-----	Poor	Poor	Poor	Fair	Fair	Poor	Very poor	Poor	Fair	Very poor	Poor
76: Morefield-----	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
77: Morefield-----	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
78: Nortez-----	Poor	Poor	Good	Fair	Good	Poor	Very poor	Fair	Fair	Poor	Good
Granath-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
79: Northrim-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor	Good
80: Ormiston-----	Poor	Poor	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
Beje-----	Very poor	Very poor	Fair	Poor	Good	Very poor	Very poor	Poor	Poor	Very poor	Fair
81: Ormiston-----	Poor	Poor	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
Fivepine-----	Poor	Poor	Good	Poor	Good	Poor	Very poor	Fair	Poor	Very poor	Good
82: Ormiston-----	Very poor	Very poor	Good	Fair	Good	Very poor	Very poor	Poor	Fair	Very poor	Good
Granath-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
83: Ormiston-----	Very poor	Very poor	Good	Fair	Good	Very poor	Very poor	Poor	Fair	Very poor	Good
Nortez-----	Poor	Poor	Good	Fair	Good	Poor	Very poor	Fair	Fair	Poor	Good
84: Payter-----	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Good

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
85: Pinacol-----	Fair	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
86: Pinacol-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
87: Pits-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
88: Pogo-----	Poor	Poor	Fair	Poor	Very poor	Good	Fair	Poor	Poor	Fair	Poor
89: Pramiss-----	Poor	Poor	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
90: Pramiss-----	Poor	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
Granath-----	Fair	Fair	Good	Fair	Good	Poor	Very poor	Fair	Fair	Very poor	Good
91: Prater-----	Very poor	Very poor	Fair	Fair	Good	Poor	Very poor	Poor	Fair	Very poor	Fair
92: Prater-----	Very poor	Very poor	Fair	Fair	Good	Poor	Very poor	Poor	Fair	Very poor	Fair
Dolcan-----	Very poor	Very poor	Poor	Poor	Fair	Very poor	Very poor	Very poor	Very poor	Very poor	Poor
93: Pulpit-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
94: Pulpit-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
95: Pulpit-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
96: Purcella-----	Poor	Poor	Fair	Fair	Fair	Poor	Very poor	Poor	Fair	Very poor	Fair
97: Ramper-----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor	Fair
98: Ramper-----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor	Fair
99: Ravola-----	Very poor	Very poor	Very poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Very poor	Very poor
100: Recapture-----	Poor	Poor	Poor	Poor	Poor	Poor	Very poor	Poor	Poor	Very poor	Poor
101: Recapture-----	Poor	Poor	Very poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor
102: Ricot-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
103: Ricot-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
104: Ricot-----	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
105: Rizno-----	Very poor	Very poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
Gapmesa-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
106:											
Rizno-----	Very poor	Very poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Poor
Littlenan-----	Very poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Very poor	Very poor	Poor
Bodry-----	Very poor	Very poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Fair	Very poor	Fair
107:											
Rizno-----	Very poor	Very poor	Poor	---	Poor	Very poor	Very poor	Very poor	---	Very poor	Poor
Ruinpoint-----	Very poor	Very poor	Poor	Very poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor
Rock outcrop-----	---	---	---	---	---	---	---	---	---	---	---
108:											
Rock outcrop-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
109:											
Romberg-----	Very poor	Very poor	Fair	Fair	Poor	Very poor	Very poor	Poor	Fair	Very poor	Poor
Crosscan-----	Very poor	Very poor	Poor	Poor	Fair	Very poor	Very poor	Very poor	Very poor	Very poor	Poor
110:											
Romberg-----	Very poor	Very poor	Fair	Fair	Poor	Very poor	Very poor	Poor	Fair	Very poor	Poor
Crosscan-----	Very poor	Very poor	Poor	Poor	Fair	Very poor	Very poor	Very poor	Very poor	Very poor	Poor
Rock outcrop-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
111:											
Roubideau-----	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
112: Sharps-----	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
113: Sharps-----	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
114: Sharps, dry-----	Fair	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
115: Sharps, dry-----	Fair	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
Gapmesa-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
116: Sharps-----	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
Cahona-----	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
117: Sharps-----	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
Pulpit-----	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor	Fair
118: Sharps-----	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
Pulpit-----	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor	Fair
119: Sheek-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor	Good
Archuleta-----	Very poor	Very poor	Fair	Poor	Good	Very poor	Very poor	Poor	Fair	Very poor	Fair

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
120: Sheek-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor	Good
Archuleta-----	Very poor	Very poor	Fair	Poor	Good	Very poor	Very poor	Poor	Fair	Very poor	Fair
Rock outcrop-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
121: Sheek-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor	Good
Archuleta-----	Very poor	Very poor	Fair	Poor	Good	Very poor	Very poor	Poor	Fair	Very poor	Fair
Rock outcrop-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
122: Sheppard-----	Very poor	Very poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Poor
123: Sideshow-----	Fair	Good	Fair	Poor	Fair	Poor	Very poor	Fair	Poor	Very poor	Fair
124: Sideshow-----	Poor	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
125: Sideshow-----	Poor	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
126: Sideshow-----	Poor	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
Zigzag-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
127: Sideslide-----	Poor	Fair	Poor	Poor	Poor	Poor	Very poor	Poor	Poor	Very poor	Poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
128: Stephouse-----	Very poor	Very poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
Rock outcrop-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
129: Torriorthents-----	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
130: Torriorthents-----	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Badland-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
131: Tragmon-----	Poor	Poor	Fair	Good	Fair	Very poor	Very poor	Poor	Good	Very poor	Fair
Sheek-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor	Good
132: Typic Argiaquolls-----	Poor	Fair	Fair	Poor	Poor	Fair	Fair	Poor	Poor	Fair	Poor
133: Typic Torriorthents-----	Very poor	Very poor	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
Rock outcrop-----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
134: Umbarg-----	Poor	Fair	Good	Good	Poor	Good	Fair	Fair	Good	Fair	Fair
Winner-----	Poor	Fair	Fair	Poor	Fair	Good	Good	Fair	Poor	Good	Fair
Tesajo-----	Poor	Fair	Good	Good	Good	Good	Fair	Fair	Good	Fair	Good
135: Ustic Torrifluvents-----	Very poor	Poor	Very poor	Poor	Good	Fair	Poor	Poor	Poor	Poor	Poor

Table 9.--Wildlife Habitat--Continued

[illegible]

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
143: Wetherill-----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor	Fair
144: Wetherill-----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor	Fair
145: Wetherill-----	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
146: Yarts-----	Fair	Fair	Fair	Poor	Fair	Poor	Very poor	Fair	Poor	Very poor	Fair
147: Yarts-----	Fair	Fair	Fair	Poor	Fair	Poor	Very poor	Fair	Poor	Very poor	Fair
148: Zau-----	Poor	Fair	Good	---	Good	Poor	Poor	Fair	Fair	Poor	Good
149: Zigzag-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
150: Zigzag-----	Very poor	Very poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Very poor	Very poor	Fair
Sideshow-----	Poor	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
151: Zyme-----	Poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
152: Zyme-----	Very poor	Very poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Very poor	Very poor	Fair

Table 10.--Building Site Development

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definition of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1: Ackmen-----	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding low strength	Slight
2: Ackmen-----	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding low strength	Slight
3: Arabrab-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock
4: Arabrab-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock
Longburn-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: large stones depth to rock
5: Archuleta-----	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Sanchez-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock
6: Argiustolls-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: large stones slope small stones

Table 10.--Building Site Development--Continued

Map symbol And Soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
6: Haplustalfs-----	Severe: slope depth to rock	Severe: shrink-swell slope	Severe: shrink-swell slope depth to rock	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: large stones slope small stones
7: Argiustolls-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: large stones slope small stones
Haplustalfs-----	Severe: slope depth to rock	Severe: shrink-swell slope	Severe: shrink-swell slope depth to rock	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: large stones slope small stones
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
8: Barx-----	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
9: Barx-----	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope
10: Barx-----	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Severe: low strength	Slight
11: Barx-----	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Gapmesa-----	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: slope depth to rock	Moderate: depth to rock	Moderate: depth to rock

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
12: Battlerock-----	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Slight
13: Beje-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock
Tragmon-----	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Moderate: large stones
14: Burnson-----	Moderate: slope too clayey depth to rock	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell slope	Severe: low strength shrink-swell	Moderate: slope
15: Burnson, dry-----	Moderate: slope too clayey depth to rock	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell slope	Severe: low strength shrink-swell	Moderate: slope
16: Burnson-----	Severe: slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope
Herm-----	Severe: slope	Severe: shrink-swell slope	Severe: slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope
17: Cahona-----	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Moderate: low strength shrink-swell	Slight
18: Cahona-----	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell slope	Moderate: low strength shrink-swell	Slight

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
19: Cahona-----	Moderate: slope	Moderate: shrink-swell slope	Moderate: slope	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: slope
20: Cahona-----	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell slope	Moderate: low strength shrink-swell	Slight
Pulpit-----	Severe: depth to rock	Moderate: shrink-swell depth to rock	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Severe: low strength	Moderate: depth to rock
21: Cahona-----	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell slope	Moderate: low strength shrink-swell	Slight
Sharps-----	Moderate: depth to rock	Slight	Moderate: depth to rock	Moderate: slope	Slight	Moderate: depth to rock
Wetherill-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: low strength shrink-swell	Slight
22: Claysprings-----	Severe: slope depth to rock	Severe: shrink-swell slope	Severe: shrink-swell slope depth to rock	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope depth to rock
23: Collide-----	Moderate: too clayey	Severe: shrink-swell	Moderate: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Slight
24: Collide-----	Moderate: slope too clayey	Severe: shrink-swell	Moderate: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell	Moderate: slope

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
25:						
Collide-----	Moderate: too clayey	Severe: shrink-swell	Moderate: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Slight
Collide, cobbly substratum-----	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Slight
26:						
Collide-----	Moderate: too clayey	Severe: shrink-swell	Moderate: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Slight
Collide, cobbly cubstratum-----	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Slight
27:						
Dalmatian-----	Moderate: wetness	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding frost action	Slight
Apmay-----	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Moderate: flooding frost action wetness	Moderate: wetness
Schrader-----	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding frost action	Moderate: flooding wetness
28:						
Dam-----	---	---	---	---	---	---
29:						
Endoaquolls-----	Severe: wetness cutbanks cave	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
29: Ustifluvents-----	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: large stones droughty
30: Falconry-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock
31: Farb-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock
Rock outcrop-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock
32: Fardraw-----	Moderate: large stones slope too clayey	Moderate: large stones shrink-swell slope	Moderate: large stones shrink-swell slope	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: large stones slope droughty
33: Fardraw-----	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones small stones
34: Fardraw-----	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones
35: Fardraw-----	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones small stones
Granath-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
36: Fivepine-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: low strength depth to rock	Severe: depth to rock
Nortez-----	Severe: depth to rock	Severe: shrink-swell	Severe: shrink-swell depth to rock	Severe: shrink-swell	Severe: low strength shrink-swell	Moderate: depth to rock
37: Fluvaquents-----	Severe: wetness cutbanks cave	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding	Severe: flooding
Haplustolls-----	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding large stones	Moderate: droughty
38: Fluvents-----	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: droughty
Fluvaquents-----	Severe: wetness cutbanks cave	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding	Severe: flooding
39: Fughes-----	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Slight
40: Fughes-----	Severe: slope	Severe: slope	Severe: shrink-swell slope	Severe: slope	Severe: low strength slope	Severe: slope
Herm-----	Severe: slope	Severe: shrink-swell slope	Severe: slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
41: Fughes-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
Sheek-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: large stones slope
42: Gladel-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock
Pulpit-----	Severe: depth to rock	Moderate: shrink-swell depth to rock	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Severe: low strength	Moderate: depth to rock
43: Goldbug-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
44: Granath-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
45: Granath-----	Moderate: slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
46: Granath-----	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
Fughes-----	Moderate: too clayey	Moderate: shrink-swell	Severe: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
47: Granath-----	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
Nortez-----	Severe: depth to rock	Severe: shrink-swell	Severe: shrink-swell depth to rock	Severe: shrink-swell	Severe: low strength shrink-swell	Moderate: depth to rock
48: Granath-----	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
Ormiston-----	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Moderate: large stones droughty
Fivepine-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: low strength depth to rock	Severe: depth to rock
49: Herm-----	Severe: slope	Severe: shrink-swell slope	Severe: slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope
50: Herm-----	Severe: slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: large stones slope small stones
51: Herm-----	Moderate: too clayey	Severe: shrink-swell	Moderate: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Slight
Pagoda-----	Slight	Severe: shrink-swell	Severe: shrink-swell	Moderate: shrink-swell slope	Severe: low strength shrink-swell	Slight

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
52: Hesperus-----	Slight	Slight	Slight	Slight	Severe: low strength	Slight
53: Hesperus-----	Slight	Slight	Slight	Moderate: slope	Severe: low strength	Slight
54: Hesperus-----	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Severe: low strength	Moderate: slope
55: Hesperus-----	Slight	Slight	Slight	Moderate: slope	Severe: low strength	Slight
56: Ilex-----	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
57: Ilex-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
58: Ilex-----	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
Granath-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
59:						
Ilex-----	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
Granath-----	Moderate: slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
60:						
Ilex-----	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: large stones slope small stones
Pramiss-----	Moderate: slope too clayey depth to rock	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell slope	Severe: low strength shrink-swell	Severe: large stones
Falconry-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock
61:						
Ilex-----	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
Pramiss-----	Moderate: too clayey depth to rock	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Moderate: large stones depth to rock
Granath-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
62:						
Irak-----	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: low strength	Moderate: wetness

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
63: Jemco-----	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: frost action slope depth to rock	Moderate: slope depth to rock
Detra-----	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: frost action slope	Moderate: slope
Beje-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock
Fughes-----	---	---	---	---	---	---
64: Lazear-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	---	Severe: slope depth to rock	Severe: slope depth to rock
65: Lillings-----	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding low strength	Severe: excess salt
66: Lillings-----	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding low strength	Severe: excess salt
67: Lillings-----	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding low strength	Severe: excess salt

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
68: Longburn-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones slope depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
69: Longburn-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones slope depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
70: Mack-----	Slight	Slight	Slight	Slight	Slight	Slight
71: Mikett-----	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Moderate: frost action wetness	Severe: excess sodium
72: Mikett-----	Moderate: wetness	Slight	Moderate: wetness	Slight	Moderate: frost action	Moderate: excess salt
73: Mikim-----	Slight	Slight	Slight	Slight	Slight	Moderate: excess salt
74: Mikim-----	Slight	Slight	Slight	Slight	Slight	Severe: excess sodium excess salt
75: Mikim-----	Slight	Slight	Slight	Moderate: slope	Slight	Moderate: excess salt

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
76: Morefield-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: frost action low strength shrink-swell	Slight
77: Morefield-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: frost action low strength shrink-swell	Slight
78: Nortez-----	Severe: depth to rock	Severe: shrink-swell	Severe: shrink-swell depth to rock	Severe: shrink-swell	Severe: low strength shrink-swell	Moderate: depth to rock
Granath-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
79: Northrim-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: large stones slope
80: Ormiston-----	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: slope
Beje-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
81: Ormiston-----	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Moderate: large stones droughty
Fivepine-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: low strength depth to rock	Severe: depth to rock

Table 10.--Building Site Development--Continued

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Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
88: Pogo-----	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding frost action wetness	Severe: flooding wetness
89: Pramiss-----	Severe: slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: large stones slope
90: Pramiss-----	Moderate: too clayey depth to rock	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Moderate: large stones depth to rock
Granath-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
91: Prater-----	Severe: slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope
92: Prater-----	Severe: slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope
Dolcan-----	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: large stones slope small stones
93: Pulpit-----	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: slope depth to rock	Severe: low strength	Moderate: depth to rock

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
94: Pulpit-----	Severe: depth to rock	Moderate: shrink-swell depth to rock	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Severe: low strength	Moderate: depth to rock
95: Pulpit-----	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Severe: depth to rock	Severe: slope	Severe: low strength	Moderate: slope depth to rock
96: Purcella-----	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Moderate: droughty
97: Ramper-----	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Slight
98: Ramper-----	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Slight
99: Ravola-----	Severe: cutbanks cave	Slight	Slight	Slight	Slight	Severe: excess salt
100: Recapture-----	Slight	Slight	Slight	Slight	Slight	Severe: excess sodium
101: Recapture-----	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding low strength shrink-swell	Severe: excess sodium excess salt
102: Ricot-----	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
103: Ricot-----	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
104: Ricot-----	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
105: Rizno-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock
Gapmesa-----	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: slope depth to rock	Moderate: depth to rock	Moderate: depth to rock
106: Rizno-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock
Littleanan-----	Moderate: slope too clayey depth to rock	Moderate: shrink-swell slope	Moderate: shrink-swell slope depth to rock	Severe: slope	Severe: low strength	Moderate: large stones slope small stones
Bodry-----	Severe: slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: large stones slope small stones
107: Rizno-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock
Ruinpoint-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
107: Rock outcrop-----	---	Severe: depth to rock	Severe: depth to rock	---	Severe: depth to rock	Severe: depth to rock
108: Rock outcrop-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock
109: Romberg-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Moderate: large stones small stones droughty
Crosscan-----	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: large stones slope small stones
110: Romberg-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: large stones small stones
Crosscan-----	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: large stones slope small stones
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
111: Roubideau-----	Severe: depth to rock	Moderate: shrink-swell depth to rock	Severe: depth to rock	Moderate: shrink-swell depth to rock	Moderate: low strength shrink-swell depth to rock	Moderate: depth to rock
112: Sharps-----	Moderate: depth to rock	Slight	Moderate: depth to rock	Moderate: slope	Slight	Moderate: depth to rock

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
113: Sharps-----	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: slope	Moderate: slope depth to rock
114: Sharps, Dry-----	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: slope	Moderate: slope depth to rock
115: Sharps, Dry-----	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: slope	Moderate: slope depth to rock
Gapmesa-----	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: slope depth to rock	Moderate: slope depth to rock
116: Sharps-----	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: slope	Moderate: slope depth to rock
Cahona-----	Moderate: slope	Moderate: shrink-swell slope	Moderate: slope	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: slope
117: Sharps-----	Moderate: depth to rock	Slight	Moderate: depth to rock	Moderate: slope	Slight	Moderate: depth to rock
Pulpit-----	Severe: depth to rock	Moderate: shrink-swell depth to rock	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Severe: low strength	Moderate: depth to rock
118: Sharps-----	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: slope	Moderate: slope depth to rock

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
118: Pulpit-----	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Severe: depth to rock	Severe: slope	Severe: low strength	Moderate: slope depth to rock
119: Sheek-----	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones
Archuleta-----	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: large stones small stones depth to rock
120: Sheek-----	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones
Archuleta-----	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: large stones small stones depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
121: Sheek-----	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones
Archuleta-----	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: large stones small stones depth to rock

Table 10.--Building Site Development--Continued

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Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
128: Rock outcrop-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock
129: Torriorthents-----	Severe: large stones slope depth to rock	Severe: large stones slope	Severe: large stones slope depth to rock	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones
130: Torriorthents-----	Severe: large stones slope depth to rock	Severe: large stones slope	Severe: large stones slope depth to rock	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones
Badland-----	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
131: Tragmon-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Sheek-----	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope
132: Typic Argiaquolls-----	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: frost action wetness	Severe: wetness
133: Typic Torriorthents-----	Severe: large stones slope depth to rock	Severe: large stones slope	Severe: large stones slope depth to rock	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
133: Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
134: Umbarg-----	Moderate: wetness	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding frost action	Slight
Winner-----	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: frost action wetness	Severe: wetness
Tesajo-----	Severe: large stones cutbanks cave	Severe: flooding large stones	Severe: flooding large stones	Severe: flooding large stones	Severe: large stones	Severe: droughty
135: Ustic Torrifluvents-----	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Moderate: excess salt droughty
136: Ustic Torriorthents-----	Severe: depth to rock	Moderate: shrink-swell depth to rock	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Moderate: shrink-swell depth to rock	Severe: depth to rock
Gullied land-----	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
137: Ustorthents-----	Severe: large stones slope depth to rock	Severe: large stones slope	Severe: large stones slope depth to rock	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones
138: Uzacol-----	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Severe: excess sodium

Table 10.--Building Site Development--Continued

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Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
143: Wetherill-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: low strength shrink-swell	Slight
144: Wetherill-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: low strength shrink-swell	Slight
145: Wetherill-----	Moderate: slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: slope
146: Yarts-----	Slight	Slight	Slight	Moderate: slope	Slight	Slight
147: Yarts-----	Slight	Slight	Slight	Slight	Slight	Slight
148: Zau-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
149: Zigzag-----	Severe: depth to rock	Severe: shrink-swell	Severe: shrink-swell depth to rock	Severe: shrink-swell slope	Severe: low strength shrink-swell	Severe: small stones depth to rock
150: Zigzag-----	Severe: slope depth to rock	Severe: shrink-swell slope	Severe: shrink-swell slope depth to rock	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope small stones depth to rock
Sideshow-----	Severe: slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
151: Zyme-----	Severe: depth to rock	Moderate: shrink-swell depth to rock	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Severe: low strength	Severe: depth to rock
152: Zyme-----	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: low strength slope	Severe: slope small stones

Table 11.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1: Ackmen-----	Moderate: flooding percs slowly	Moderate: seepage slope	Moderate: flooding	Moderate: flooding	Good
2: Ackmen-----	Moderate: flooding percs slowly	Moderate: seepage slope	Moderate: flooding	Moderate: flooding	Good
3: Arabrab-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
4: Arabrab-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
Longburn-----	Severe: depth to rock	Severe: large stones slope depth to rock	Severe: large stones depth to rock	Severe: depth to rock	Poor: small stones depth to rock
5: Archuleta-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Sanchez-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
6: Argiustolls-----	Severe: percs slowly slope depth to rock	Severe: large stones slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
Haplustalfs-----	Severe: percs slowly slope depth to rock	Severe: large stones slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
7: Argiustolls-----	Severe: percs slowly slope depth to rock	Severe: large stones slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
7: Haplustalfs-----	Severe: percs slowly slope depth to rock	Severe: large stones slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
8: Barx-----	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
9: Barx-----	Moderate: percs slowly slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
10: Barx-----	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
11: Barx-----	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
Gapmesa-----	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
12: Battlerock-----	Severe: percs slowly	Moderate: slope	Moderate: flooding	Moderate: flooding	Good
13: Beje-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
Tragmon-----	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Fair: small stones
14: Burnson-----	Severe: percs slowly	Severe: slope	Severe: too clayey depth to rock	Moderate: slope depth to rock	Poor: hard to pack too clayey
15: Burnson, dry-----	Severe: percs slowly	Severe: slope	Severe: too clayey depth to rock	Moderate: slope depth to rock	Poor: hard to pack too clayey

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
16: Burnson-----	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey depth to rock	Severe: slope	Poor: hard to pack slope too clayey
Herm-----	Severe: percs slowly slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
17: Cahona-----	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
18: Cahona-----	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
19: Cahona-----	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
20: Cahona-----	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
Pulpit-----	Severe: percs slowly depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
21: Cahona-----	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
Sharps-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Wetherill-----	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
22: Claysprings-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: hard to pack slope depth to rock
23: Collide-----	Severe: percs slowly	Moderate: slope	Slight	Slight	Good

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
24: Collide-----	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
25: Collide-----	Severe: percs slowly	Slight	Slight	Slight	Good
Collide, cobbly substratum-----	Severe: percs slowly	Moderate: seepage	Slight	Slight	Good
26: Collide-----	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Collide, cobbly substratum-----	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
27: Dalmatian-----	Severe: wetness	Severe: seepage wetness	Severe: seepage wetness	Severe: wetness	Fair: wetness
Apmay-----	Severe: wetness	Severe: seepage wetness	Severe: seepage wetness	Severe: seepage wetness	Poor: seepage small stones wetness
Schrader-----	Severe: flooding wetness	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Poor: wetness
28: Dam-----	---	---	---	---	---
29: Endoaquolls-----	Severe: flooding wetness poor filter	Severe: flooding seepage	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Poor: seepage small stones too sandy
Ustifluvents-----	Severe: flooding wetness poor filter	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Poor: large stones seepage too sandy
30: Falconry-----	Severe: depth to rock	Severe: seepage slope depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Poor: small stones depth to rock

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
31: Farb-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Rock outcrop-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
32: Fardraw-----	Severe: percs slowly	Severe: slope	Severe: large stones too clayey	Moderate: slope	Poor: large stones too clayey
33: Fardraw-----	Severe: large stones percs slowly	Severe: large stones	Severe: large stones too clayey	Slight	Poor: large stones too clayey
34: Fardraw-----	Severe: large stones percs slowly slope	Severe: large stones slope	Severe: large stones slope too clayey	Severe: slope	Poor: large stones slope too clayey
35: Fardraw-----	Severe: large stones percs slowly	Severe: large stones slope	Severe: large stones too clayey	Slight	Poor: large stones too clayey
Granath-----	Severe: percs slowly	Severe: slope	Moderate: too clayey	Slight	Fair: too clayey
36: Fivepine-----	Severe: depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: too clayey depth to rock
Nortez-----	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
37: Fluvaquents-----	Severe: flooding wetness poor filter	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Poor: seepage small stones too sandy
Haplustolls-----	Severe: poor filter	Severe: seepage	Severe: large stones seepage too sandy	Severe: seepage	Poor: seepage small stones too sandy

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
38: Fluvents-----	Severe: flooding poor filter	Severe: flooding seepage	Severe: flooding seepage too sandy	Severe: flooding seepage	Poor: seepage small stones too sandy
Fluvaquents-----	Severe: flooding wetness poor filter	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Poor: seepage small stones too sandy
39: Fughes-----	Severe: percs slowly	Moderate: seepage slope	Severe: too clayey	Slight	Poor: hard to pack too clayey
40: Fughes-----	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey	Severe: slope	Poor: hard to pack slope too clayey
Herm-----	Severe: percs slowly slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
41: Fughes-----	Severe: percs slowly slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope thin layer
Sheek-----	Severe: percs slowly slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: large stones slope
42: Gladel-----	Severe: depth to rock	Severe: seepage depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Poor: large stones depth to rock
Pulpit-----	Severe: percs slowly depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
43: Goldbug-----	Severe: percs slowly slope	Severe: seepage slope	Severe: slope too clayey	Severe: slope	Poor: slope too clayey
44: Granath-----	Severe: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: too clayey

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
45: Granath-----	Severe: percs slowly	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: slope too clayey
46: Granath-----	Severe: percs slowly	Severe: slope	Severe: too clayey	Slight	Poor: too clayey
Fughes-----	Severe: percs slowly	Severe: slope	Severe: too clayey	Slight	Poor: hard to pack too clayey
47: Granath-----	Severe: percs slowly	Severe: slope	Severe: too clayey	Slight	Poor: too clayey
Nortez-----	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
48: Granath-----	Severe: percs slowly	Severe: slope	Severe: too clayey	Slight	Poor: too clayey
Ormiston-----	Severe: large stones percs slowly	Severe: large stones slope	Severe: large stones too clayey	Slight	Poor: hard to pack small stones too clayey
Fivepine-----	Severe: depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: too clayey depth to rock
49: Herm-----	Severe: percs slowly slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
50: Herm-----	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey	Severe: slope	Poor: hard to pack slope too clayey

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
51: Herm-----	Severe: percs slowly	Severe: slope	Moderate: too clayey	Slight	Fair: too clayey
Pagoda-----	Severe: percs slowly	Severe: slope	Moderate: too clayey	Slight	Fair: too clayey
52: Hesperus-----	Severe: percs slowly	Moderate: seepage	Moderate: too clayey	Slight	Fair: too clayey
53: Hesperus-----	Severe: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: too clayey
54: Hesperus-----	Severe: percs slowly	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: slope too clayey
55: Hesperus-----	Severe: percs slowly	Severe: slope	Moderate: too clayey	Slight	Fair: too clayey
56: Ilex-----	Severe: percs slowly	Severe: slope	Severe: too clayey	Slight	Poor: too clayey
57: Ilex-----	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey	Severe: slope	Poor: slope too clayey
58: Ilex-----	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey
Granath-----	Severe: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: too clayey
59: Ilex-----	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: too clayey
Granath-----	Severe: percs slowly	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: slope too clayey

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
60:					
Ilex-----	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: too clayey
Pramiss-----	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
Falconry-----	Severe: depth to rock	Severe: seepage slope depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Poor: small stones depth to rock
61:					
Ilex-----	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey
Pramiss-----	Severe: percs slowly depth to rock	Severe: depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
Granath-----	Severe: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: too clayey
62:					
Irak-----	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Poor: wetness
63:					
Jemco-----	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
Detra-----	Severe: percs slowly	Severe: slope	Severe: depth to rock	Moderate: slope depth to rock	Fair: slope too clayey depth to rock
Beje-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
64: Lazear-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope small stones depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
65: Lillings-----	Severe: percs slowly	Moderate: seepage slope	Moderate: flooding	Moderate: flooding	Good
66: Lillings-----	Severe: percs slowly	Moderate: seepage slope	Moderate: flooding	Moderate: flooding	Good
67: Lillings-----	Severe: percs slowly	Moderate: seepage slope	Moderate: flooding	Moderate: flooding	Good
68: Longburn-----	Severe: slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
69: Longburn-----	Severe: slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
70: Mack-----	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
71: Mikett-----	Severe: percs slowly wetness	Severe: wetness	Severe: wetness	Severe: wetness	Poor: wetness

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
72: Mikett-----	Severe: percs slowly wetness	Severe: wetness	Severe: wetness	Severe: wetness	Fair: wetness
73: Mikim-----	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
74: Mikim-----	Severe: percs slowly	Slight	Slight	Slight	Good
75: Mikim-----	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
76: Morefield-----	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
77: Morefield-----	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
78: Nortez-----	Severe: percs slowly depth to rock	Severe: depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
Granath-----	Severe: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: too clayey
79: Northrim-----	Severe: percs slowly slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
80: Ormiston-----	Severe: large stones percs slowly slope	Severe: large stones slope	Severe: large stones slope too clayey	Severe: slope	Poor: hard to pack small stones too clayey
Beje-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
81: Ormiston-----	Severe: large stones percs slowly	Severe: large stones slope	Severe: large stones too clayey	Slight	Poor: hard to pack small stones too clayey
Fivepine-----	Severe: depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: too clayey depth to rock
82: Ormiston-----	Severe: percs slowly	Severe: large stones	Severe: too clayey depth to rock	Moderate: depth to rock	Poor: hard to pack small stones too clayey
Granath-----	Severe: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: too clayey
83: Ormiston-----	Severe: percs slowly	Severe: large stones slope	Severe: too clayey depth to rock	Moderate: depth to rock	Poor: hard to pack small stones too clayey
Nortez-----	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
84: Payter-----	Moderate: slope	Severe: seepage slope	Severe: seepage	Severe: seepage	Fair: slope
85: Pinacol-----	Severe: percs slowly	Moderate: slope	Severe: large stones	Slight	Poor: large stones
86: Pinacol-----	Severe: percs slowly slope	Severe: slope	Severe: large stones slope	Severe: slope	Poor: large stones slope
87: Pits-----	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
88: Pogo-----	Severe: flooding percs slowly wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Poor: wetness

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
89: Pramiss-----	Severe: percs slowly slope depth to rock	Severe: slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
90: Pramiss-----	Severe: percs slowly depth to rock	Severe: depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
Granath-----	Severe: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: too clayey
91: Prater-----	Severe: percs slowly slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
92: Prater-----	Severe: percs slowly slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Dolcan-----	Severe: slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope	Poor: large stones slope depth to rock
93: Pulpit-----	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
94: Pulpit-----	Severe: percs slowly depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
95: Pulpit-----	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
96: Purcella-----	Severe: large stones	Severe: large stones seepage	Severe: large stones	Slight	Poor: large stones

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
97: Ramper-----	Severe: percs slowly	Slight	Moderate: flooding	Moderate: flooding	Good
98: Ramper-----	Severe: percs slowly	Slight	Moderate: flooding	Moderate: flooding	Good
99: Ravola-----	Severe: percs slowly	Slight	Moderate: too sandy	Slight	Fair: too sandy
100: Recapture-----	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
101: Recapture-----	Severe: percs slowly	Severe: seepage	Moderate: flooding	Moderate: flooding	Fair: small stones
102: Ricot-----	Severe: percs slowly	Moderate: seepage slope	Severe: too clayey	Slight	Poor: large stones too clayey
103: Ricot-----	Severe: percs slowly	Moderate: seepage slope	Severe: too clayey	Slight	Poor: large stones too clayey
104: Ricot-----	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: large stones too clayey
105: Rizno-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Gapmesa-----	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
106:					
Rizno-----	Severe: depth to rock	Severe: seepage slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: small stones depth to rock
Littlenan-----	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Poor: depth to rock
Bodry-----	Severe: percs slowly slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: hard to pack slope depth to rock
107:					
Rizno-----	Severe: depth to rock	Severe: seepage slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Ruinpoint-----	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
Rock outcrop-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
108:					
Rock outcrop-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
109:					
Romberg-----	Severe: percs slowly slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: slope small stones
Crosscan-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope small stones depth to rock

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
110: Romberg-----	Severe: percs slowly slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: slope small stones
Crosscan-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope small stones depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
111: Roubideau-----	Severe: percs slowly depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
112: Sharps-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
113: Sharps-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
114: Sharps, dry-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
115: Sharps, dry-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Gapmesa-----	Severe: depth to rock	Severe: seepage slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
116: Sharps-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Cahona-----	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
117: Sharps-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Pulpit-----	Severe: percs slowly depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
118: Sharps-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Pulpit-----	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
119: Sheek-----	Severe: large stones percs slowly slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: slope small stones
Archuleta-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
120: Sheek-----	Severe: large stones percs slowly slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: slope small stones
Archuleta-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
121: Sheek-----	Severe: large stones percs slowly slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: slope small stones

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
121: Archuleta-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
122: Sheppard-----	Severe: poor filter	Severe: seepage	Severe: too sandy	Slight	Poor: too sandy
123: Sideshow-----	Severe: percs slowly	Slight	Severe: too clayey	Slight	Poor: too clayey
124: Sideshow-----	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey
125: Sideshow-----	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: too clayey
126: Sideshow-----	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: too clayey
Zigzag-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
127: Sideslide-----	Severe: percs slowly wetness	Moderate: slope	Severe: too clayey wetness	Severe: wetness	Poor: hard to pack too clayey
128: Stephouse-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
Rock outcrop-----	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
129: Torriorthents-----	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope	Poor: slope small stones depth to rock
130: Torriorthents-----	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope	Poor: slope small stones depth to rock
Badland-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
131: Tragmon-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Sheek-----	Severe: large stones percs slowly slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: slope small stones
132: Typic Argiaquolls-----	Severe: wetness	Severe: seepage wetness	Severe: seepage wetness	Severe: seepage wetness	Poor: wetness
133: Typic Torriorthents----	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope	Poor: slope small stones depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
134: Umbarg-----	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Fair: wetness
Winner-----	Severe: percs slowly wetness	Severe: wetness	Severe: wetness	Severe: wetness	Poor: small stones wetness

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
134: Tesajo-----	Severe: large stones poor filter	Severe: large stones seepage	Severe: large stones seepage wetness	Severe: seepage	Poor: large stones
135: Ustic Torrifluvents---	Moderate: flooding	Severe: seepage	Moderate: flooding too sandy	Moderate: flooding	Fair: too sandy
136: Ustic Torriorthents---	Severe: percs slowly depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Gullied land-----	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
137: Ustorthents-----	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
138: Uzacol-----	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
138: Zwicker-----	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Claysprings-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Slight	Poor: hard to pack depth to rock
139: Water-----	---	---	---	---	---
140: Wauquie-----	Severe: slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: slope small stones

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
141: Wauquie-----	Severe: slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: slope small stones
Dolcan-----	Severe: slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope	Poor: large stones slope depth to rock
142: Wauquie-----	Severe: slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: slope small stones
Dolcan-----	Severe: slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope	Poor: large stones slope depth to rock
Rock outcrop-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
143: Wetherill-----	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
144: Wetherill-----	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
145: Wetherill-----	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
146: Yarts-----	Slight	Severe: seepage	Slight	Slight	Good
147: Yarts-----	Slight	Severe: seepage	Slight	Slight	Good

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
148: Zau-----	Severe: percs slowly slope depth to rock	Severe: slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: slope too clayey depth to rock
149: Zigzag-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
150: Zigzag-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope depth to rock
Sideshow-----	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey	Severe: slope	Poor: slope too clayey
151: Zyme-----	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
152: Zyme-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope depth to rock

Table 12.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1: Ackmen-----	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Good
2: Ackmen-----	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Good
3: Arabrab-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
4: Arabrab-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Longburn-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
5: Archuleta-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Sanchez-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
6: Argiustolls-----	Poor: low strength slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
Haplustalfs-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
7: Argiustolls-----	Poor: low strength slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
Haplustalfs-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
Rock outcrop-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
8: Barx-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
9: Barx-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey
10: Barx-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
11: Barx-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
Gapmesa-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
12: Battlerock-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
13: Beje-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Tragmon-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
14: Burnson-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
15: Burnson, dry-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
16: Burnson-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
Herm-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
17: Cahona-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
18: Cahona-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
19: Cahona-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey
20: Cahona-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
Pulpit-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: too clayey depth to rock
21: Cahona-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
Sharps-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: too clayey depth to rock
Wetherill-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
22: Claysprings-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
23: Collide-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
24: Collide-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
25: Collide-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Collide, cobbly substratum-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim too clayey
26: Collide-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Collide, cobbly substratum-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
27: Dalmatian-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim small stones
Apmay-----	Fair: wetness	Improbable: small stones	Probable	Poor: area reclaim small stones
Schrader-----	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones
28: Dam-----	---	---	---	---
29: Endoaquolls-----	Poor: wetness	Probable	Probable	Poor: area reclaim small stones too sandy
Ustifluvents-----	Fair: large stones wetness	Improbable: large stones	Improbable: large stones	Poor: area reclaim small stones
30: Falconry-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
31: Farb-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Rock outcrop-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
32: Fardraw-----	Fair: large stones shrink-swell	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim small stones too clayey
33: Fardraw-----	Poor: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim large stones too clayey
34: Fardraw-----	Poor: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim large stones too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
35: Fardraw-----	Poor: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim large stones too clayey
Granath-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
36: Fivepine-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
Nortez-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
37: Fluvaquents-----	Fair: wetness	Probable	Probable	Poor: area reclaim small stones too sandy
Haplustolls-----	Fair: large stones	Probable	Probable	Poor: area reclaim small stones too sandy
38: Fluvents-----	Good	Probable	Probable	Poor: area reclaim small stones too sandy
Fluvaquents-----	Fair: wetness	Probable	Probable	Poor: area reclaim small stones too sandy
39: Fughes-----	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
40: Fughes-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: slope
Herm-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
41: Fughes-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
41: Sheek-----	Fair: large stones slope	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim large stones slope
42: Gladel-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones depth to rock
Pulpit-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: too clayey depth to rock
43: Goldbug-----	Fair: shrink-swell slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones too clayey
44: Granath-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
45: Granath-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey
46: Granath-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Fughes-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
47: Granath-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Nortez-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
48: Granath-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Ormiston-----	Poor: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim small stones too clayey
Fivepine-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
49: Herm-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
50: Herm-----	Poor: low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
51: Herm-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Pagoda-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
52: Hesperus-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
53: Hesperus-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
54: Hesperus-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones too clayey
55: Hesperus-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
56: Ilex-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
57: Ilex-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope
58: Ilex-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
Granath-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
59: Ilex-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
59: Granath-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey
60: Ilex-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones too clayey
Pramiss-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones too clayey
Falconry-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
61: Ilex-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
Pramiss-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Granath-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
62: Irak-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
63: Jemco-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey depth to rock
Detra-----	Fair: thin layer depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones
Beje-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
64: Lazear-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
65: Lillings-----	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
66: Lillings-----	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
67: Lillings-----	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
68: Longburn-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
69: Longburn-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
70: Mack-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
71: Mikett-----	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Poor: excess sodium excess salt
72: Mikett-----	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Fair: excess salt small stones too clayey
73: Mikim-----	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Fair: excess salt small stones too clayey
74: Mikim-----	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess sodium excess salt

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
75: Mikim-----	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Fair: excess salt small stones too clayey
76: Morefield-----	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
77: Morefield-----	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
78: Nortez-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Granath-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
79: Northrim-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
80: Ormiston-----	Poor: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim small stones too clayey
Beje-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
81: Ormiston-----	Poor: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim small stones too clayey
Fivepine-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
82: Ormiston-----	Fair: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
Granath-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
83: Ormiston-----	Fair: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
Nortez-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
84: Payter-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones
85: Pinacol-----	Fair: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim small stones too clayey
86: Pinacol-----	Poor: slope	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim small stones too clayey
87: Pits-----	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
88: Pogo-----	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
89: Pramiss-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones slope too clayey
90: Pramiss-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Granath-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
91: Prater-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
92: Prater-----	Poor: low strength shrink-swell slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
Dolcan-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones slope depth to rock
93: Pulpit-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: too clayey depth to rock
94: Pulpit-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: too clayey depth to rock
95: Pulpit-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey depth to rock
96: Purcella-----	Poor: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim large stones
97: Ramper-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: excess salt small stones too clayey
98: Ramper-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: excess salt small stones too clayey
99: Ravola-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey too sandy
100: Recapture-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess sodium
101: Recapture-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess sodium excess salt small stones

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
102: Ricot-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
103: Ricot-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
104: Ricot-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
105: Rizno-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Gapmesa-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
106: Rizno-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
Littlenan-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey
Bodry-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones slope too clayey
107: Rizno-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Ruinpoint-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Good
Rock outcrop-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
108: Rock outcrop-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
109: Romberg-----	Fair: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
109: Crosscan-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
110: Romberg-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Crosscan-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
111: Roubideau-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey depth to rock
112: Sharps-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: too clayey depth to rock
113: Sharps-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey depth to rock
114: Sharps, dry-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey depth to rock
115: Sharps, dry-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey depth to rock
Gapmesa-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
116: Sharps-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey depth to rock

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
116: Cahona-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey
117: Sharps-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: too clayey depth to rock
Pulpit-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: too clayey depth to rock
118: Sharps-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey depth to rock
Pulpit-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey depth to rock
119: Sheek-----	Poor: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Archuleta-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
120: Sheek-----	Poor: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Archuleta-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
121: Sheek-----	Poor: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
121: Archuleta-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
122: Sheppard-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: too sandy
123: Sideshow-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
124: Sideshow-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
125: Sideshow-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
126: Sideshow-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Zigzag-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey depth to rock
127: Sideslide-----	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
128: Stephouse-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Rock outcrop-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
129: Torriorthents-----	Poor: large stones slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
130: Torriorthents-----	Poor: large stones slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Badland-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
131: Tragmon-----	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Sheek-----	Poor: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
132: Typic Argiaquolls-----	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
133: Typic Torriorthents----	Poor: large stones slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
134: Umbarg-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
Winner-----	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones wetness
Tesajo-----	Poor: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim large stones
135: Ustic Torrifluvents----	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
136: Ustic Torriorthents----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
Gullied land-----	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
137: Ustorthents-----	Poor: large stones slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
138: Uzacol-----	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt small stones too clayey
Zwicker-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey
Claysprings-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey depth to rock
139: Water-----	---	---	---	---
140: Wauquie-----	Fair: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
141: Wauquie-----	Fair: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Dolcan-----	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones slope depth to rock
142: Wauquie-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Dolcan-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones slope depth to rock
Rock outcrop-----	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
143: Wetherill-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
144: Wetherill-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
145: Wetherill-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey
146: Yarts-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
147: Yarts-----	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
148: Zau-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey
149: Zigzag-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey depth to rock
150: Zigzag-----	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey depth to rock
Sideshow-----	Poor: low strength shrink-swell slope	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
151: Zyme-----	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey depth to rock
152: Zyme-----	Poor: low strength slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey depth to rock

Table 13.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1: Ackmen-----	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
2: Ackmen-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
3: Arabrab-----	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: soil blowing depth to rock	Limitation: depth to rock
4: Arabrab-----	Severe: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: slope soil blowing depth to rock	Limitation: slope depth to rock
Longburn-----	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
5: Archuleta-----	Severe: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
Sanchez-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
6: Argiustolls-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Haplustalfs-----	Severe: slope depth to rock	Moderate: hard to pack large stones	Severe: no water	Limitation: deep to water	Limitation: large stones percs slowly slope	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
7: Argiustolls-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Haplustalfs-----	Severe: slope depth to rock	Moderate: hard to pack large stones	Severe: no water	Limitation: deep to water	Limitation: large stones percs slowly slope	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
8: Barx-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
9: Barx-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope too arid
10: Barx-----	Moderate: seepage	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
11: Barx-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
Gapmesa-----	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock
12: Battlerock-----	Moderate: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Limitation: too arid
13: Beje-----	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: depth to rock	Limitation: depth to rock
Tragmon-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Favorable
14: Burnson-----	Severe: slope	Moderate: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
15: Burnson, dry-----	Severe: slope	Moderate: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
16: Burnson-----	Severe: slope	Moderate: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
Herm-----	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
17: Cahona-----	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily too arid
18: Cahona-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
19: Cahona-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope too arid
20: Cahona-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
Pulpit-----	Moderate: seepage slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily too arid
21: Cahona-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
Sharps-----	Moderate: seepage slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily too arid
Wetherill-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
22: Claysprings-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: slope too arid depth to rock
23: Collide-----	Moderate: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly too arid
24: Collide-----	Severe: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope too arid
25: Collide-----	Slight	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly	Limitation: percs slowly	Limitation: percs slowly too arid
Collide, cobbly substratum-----	Moderate: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly	Limitation: percs slowly	Limitation: percs slowly too arid
26: Collide-----	Moderate: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly too arid
Collide, cobbly Substratum-----	Moderate: seepage slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly too arid
27: Dalmatian-----	Severe: seepage	Severe: piping	Moderate: slow refill deep to water	Limitation: deep to water	Favorable	Favorable	Favorable

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
27: Apmay-----	Severe: seepage	Severe: seepage wetness	Severe: slow refill	Favorable	Limitation: erodes easily wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
Schrader-----	Severe: seepage	Severe: piping wetness	Moderate: slow refill	Limitation: flooding frost action	Limitation: flooding wetness	Limitation: wetness	Limitation: wetness
28: Dam-----	---	---	---	---	---	---	---
29: Endoaquolls-----	Severe: seepage	Severe: seepage wetness	Severe: cutbanks cave	Limitation: flooding large stones	Limitation: large stones wetness	Limitation: large stones too sandy wetness	Limitation: large stones wetness droughty
Ustifluvents-----	Severe: seepage	Severe: seepage	Severe: cutbanks cave	Limitation: flooding large stones	Limitation: large stones wetness	Limitation: large stones too sandy wetness	Limitation: large stones droughty
30: Falconry-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: slope soil blowing depth to rock	Limitation: slope depth to rock droughty
31: Farb-----	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: soil blowing depth to rock	Limitation: too arid droughty
Rock outcrop-----	Severe: depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: depth to rock	Limitation: depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
32: Fardraw-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones percs slowly slope	Limitation: large stones slope droughty
33: Fardraw-----	Moderate: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones percs slowly	Limitation: large stones droughty
34: Fardraw-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones percs slowly slope	Limitation: large stones slope droughty
35: Fardraw-----	Moderate: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones percs slowly	Limitation: large stones droughty
Granath-----	Moderate: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
36: Fivepine-----	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: large stones depth to rock	Limitation: large stones depth to rock
Nortez-----	Moderate: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
37: Fluvaquents-----	Severe: seepage	Severe: seepage wetness	Severe: cutbanks cave	Limitation: flooding cutbanks cave	Limitation: wetness droughty	Limitation: large stones too sandy wetness	Limitation: large stones wetness droughty
Haplustolls-----	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: large stones droughty	Limitation: large stones too sandy soil blowing	Limitation: large stones droughty
38: Fluvents-----	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: flooding droughty	Limitation: large stones too sandy	Limitation: large stones droughty
Fluvaquents-----	Severe: seepage	Severe: seepage wetness	Severe: cutbanks cave	Limitation: flooding cutbanks cave	Limitation: wetness droughty	Limitation: large stones too sandy wetness	Limitation: large stones wetness droughty
39: Fughes-----	Moderate: seepage slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly
40: Fughes-----	Severe: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
Herm-----	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
41: Fughes-----	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: slope	Limitation: percs slowly slope
Sheek-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones slope	Limitation: large stones slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
42: Gladel-----	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones depth to rock	Limitation: large stones droughty
Pulpit-----	Moderate: seepage slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily too arid
43: Goldbug-----	Severe: slope	Moderate: large stones	Severe: no water	Limitation: deep to water	Limitation: slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
44: Granath-----	Moderate: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
45: Granath-----	Severe: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
46: Granath-----	Moderate: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly
Fughes-----	Moderate: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly
47: Granath-----	Moderate: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
47: Nortez-----	Moderate: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock
48: Granath-----	Moderate: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly
Ormiston-----	Moderate: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones percs slowly	Limitation: large stones droughty
Fivepine-----	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: large stones depth to rock	Limitation: large stones depth to rock
49: Herm-----	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
50: Herm-----	Severe: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
51: Herm-----	Moderate: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly
Pagoda-----	Moderate: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Favorable	Limitation: percs slowly

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
52: Hesperus-----	Moderate: seepage	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Favorable	Favorable	Favorable
53: Hesperus-----	Moderate: seepage slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
54: Hesperus-----	Severe: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
55: Hesperus-----	Moderate: seepage slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Favorable
56: Ilex-----	Moderate: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly
57: Ilex-----	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
58: Ilex-----	Moderate: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly
Granath-----	Moderate: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
59: Ilex-----	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
59: Granath-----	Severe: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
60: Ilex-----	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
Pramiss-----	Severe: slope	Moderate: hard to pack large stones thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
Falconry-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: slope soil blowing depth to rock	Limitation: slope depth to rock droughty
61: Ilex-----	Moderate: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly
Pramiss-----	Moderate: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock
Granath-----	Moderate: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
62: Irak-----	Moderate: seepage	Severe: piping wetness	Moderate: slow refill	Favorable	Limitation: wetness	Limitation: wetness	Limitation: wetness

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
63: Jemco-----	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
Detra-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Beje-----	Severe: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
64: Lazear-----	Severe: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
65: Lillings-----	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily excess salt	Limitation: erodes easily	Limitation: erodes easily excess salt too arid
66: Lillings-----	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: excess salt	Limitation: erodes easily	Limitation: erodes easily excess salt too arid
67: Lillings-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: excess salt slope	Limitation: erodes easily	Limitation: erodes easily excess salt too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
68: Longburn-----	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
69: Longburn-----	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
70: Mack-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: excess salt slope soil blowing	Limitation: soil blowing	Limitation: too arid
71: Mikett-----	Slight	Severe: excess sodium piping wetness	Severe: slow refill	Limitation: excess sodium excess salt	Limitation: excess sodium excess salt wetness	Limitation: wetness	Limitation: excess salt wetness too arid
72: Mikett-----	Slight	Moderate: piping wetness	Severe: slow refill	Limitation: deep to water	Limitation: excess salt	Favorable	Limitation: excess salt too arid
73: Mikim-----	Slight	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: excess salt	Favorable	Limitation: excess salt too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
74: Mikim-----	Slight	Severe: excess sodium	Severe: no water	Limitation: deep to water	Limitation: excess sodium excess salt	Favorable	Limitation: excess sodium excess salt too arid
75: Mikim-----	Moderate: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily excess salt slope	Limitation: erodes easily	Limitation: erodes easily excess salt too arid
76: Morefield-----	Slight	Severe: piping	Severe: no water	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily too arid
77: Morefield-----	Moderate: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
78: Nortez-----	Moderate: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock
Granath-----	Moderate: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
79: Northrim-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: large stones slope	Limitation: large stones slope
80: Ormiston-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones percs slowly slope	Limitation: large stones slope droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
80: Beje-----	Severe: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
81: Ormiston-----	Moderate: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones percs slowly	Limitation: large stones droughty
Fivepine-----	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: large stones depth to rock	Limitation: large stones depth to rock
82: Ormiston-----	Moderate: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones percs slowly	Limitation: large stones droughty
Granath-----	Moderate: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
83: Ormiston-----	Moderate: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones percs slowly	Limitation: large stones droughty
Nortez-----	Moderate: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock
84: Payter-----	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope soil blowing	Limitation: slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
85: Pinacol-----	Moderate: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones	Limitation: large stones droughty
86: Pinacol-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
87: Pits-----	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
88: Pogo-----	Slight	Severe: wetness	Severe: slow refill	Limitation: flooding frost action	Limitation: erodes easily flooding wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
89: Pramiss-----	Severe: slope	Moderate: hard to pack large stones thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
90: Pramiss-----	Moderate: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock
Granath-----	Moderate: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
91: Prater-----	Severe: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: percs slowly slope soil blowing	Limitation: percs slowly slope too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
92: Prater-----	Severe: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: percs slowly slope soil blowing	Limitation: percs slowly slope too arid
Dolcan-----	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
93: Pulpit-----	Moderate: seepage slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily too arid
94: Pulpit-----	Moderate: seepage slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily too arid
95: Pulpit-----	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
96: Purcella-----	Severe: seepage	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones droughty	Limitation: large stones	Limitation: large stones too arid droughty
97: Ramper-----	Slight	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: excess salt	Favorable	Limitation: too arid
98: Ramper-----	Slight	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily excess salt	Limitation: erodes easily	Limitation: erodes easily too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
99: Ravola-----	Slight	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: excess salt	Limitation: too sandy	Limitation: excess salt too arid
100: Recapture-----	Moderate: seepage slope	Severe: excess sodium	Severe: no water	Limitation: deep to water	Limitation: excess sodium slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily excess sodium too arid
101: Recapture-----	Severe: seepage	Severe: excess sodium piping	Severe: no water	Limitation: deep to water	Limitation: excess sodium slope soil blowing	Limitation: soil blowing	Limitation: excess sodium excess salt too arid
102: Ricot-----	Slight	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly	Limitation: percs slowly	Limitation: percs slowly
103: Ricot-----	Moderate: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly
104: Ricot-----	Severe: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
105: Rizno-----	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily too arid
Gapmesa-----	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
106: Rizno-----	Severe: slope depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: slope too sandy depth to rock	Limitation: slope too arid droughty
Littlenan-----	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: slope too arid depth to rock
Bodry-----	Severe: slope	Moderate: hard to pack large stones thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
107: Rizno-----	Severe: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope too arid depth to rock
Ruinpoint-----	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
108: Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
109: Romberg-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
109: Crosscan-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
110: Romberg-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope too arid
Crosscan-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
111: Roubideau-----	Moderate: seepage slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: depth to rock	Limitation: too arid depth to rock
112: Sharps-----	Moderate: seepage slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily too arid
113: Sharps-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
114: Sharps, dry-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
115: Sharps, dry-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
Gapmesa-----	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope too arid depth to rock
116: Sharps-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
Cahona-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope too arid
117: Sharps-----	Moderate: seepage slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily too arid
Pulpit-----	Moderate: seepage slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily too arid
118: Sharps-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
Pulpit-----	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
119: Sheek-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
Archuleta-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
120: Sheek-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
Archuleta-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Sheek-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
121: Archuleta-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
122: Sheppard-----	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: too arid droughty
123: Sideshow-----	Slight	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily too arid
124: Sideshow-----	Moderate: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: erodes easily percs slowly	Limitation: erodes easily too arid
125: Sideshow-----	Severe: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: erodes easily percs slowly slope	Limitation: erodes easily slope too arid
126: Sideshow-----	Severe: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: erodes easily percs slowly slope	Limitation: erodes easily slope too arid
Zigzag-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: slope too arid depth to rock
127: Sideslide-----	Moderate: slope	Moderate: hard to pack wetness	Severe: slow refill	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: percs slowly wetness	Limitation: percs slowly

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
128: Stephouse-----	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: soil blowing depth to rock	Limitation: depth to rock
Rock outcrop-----	Severe: depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: depth to rock	Limitation: depth to rock
129: Torriorthents-----	Severe: slope depth to rock	Severe: large stones piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
130: Torriorthents-----	Severe: slope depth to rock	Severe: large stones piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
Badland-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
131: Tragmon-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope soil blowing	Limitation: slope
Sheek-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
132: Typic Argiaquolls-----	Severe: seepage	Severe: piping wetness	Severe: slow refill	Limitation: frost action percs slowly	Limitation: percs slowly wetness	Limitation: wetness	Limitation: percs slowly wetness

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
133: Typic Torriorthents----	Severe: slope depth to rock	Severe: large stones piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
134: Umbarg-----	Moderate: seepage	Severe: piping	Severe: slow refill	Limitation: deep to water	Favorable	Favorable	Favorable
Winner-----	Moderate: seepage	Severe: wetness	Severe: slow refill	Limitation: frost action large stones	Limitation: wetness	Limitation: wetness	Limitation: wetness
Tesajo-----	Severe: seepage	Severe: large stones	Severe: large stones cutbanks cave	Limitation: deep to water	Limitation: large stones soil blowing droughty	Limitation: large stones too sandy soil blowing	Limitation: large stones droughty
135: Ustic Torrifluvents----	Severe: seepage	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: fast intake soil blowing droughty	Limitation: too sandy soil blowing	Limitation: excess salt too arid droughty
136: Ustic Torriorthents----	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones depth to rock	Limitation: large stones too arid
Gullied land-----	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
137: Ustorthents-----	Severe: slope depth to rock	Severe: large stones piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: excess salt large stones slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
138: Uzacol-----	Moderate: slope	Severe: excess sodium	Severe: no water	Limitation: deep to water	Limitation: excess sodium percs slowly slope	Limitation: percs slowly	Limitation: excess sodium too arid
Zwicker-----	Moderate: slope depth to rock	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: too arid depth to rock
Claysprings-----	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: too arid depth to rock
139: Water-----	---	---	---	---	---	---	---
140: Wauquie-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope too arid
141: Wauquie-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope soil blowing	Limitation: large stones slope too arid
Dolcan-----	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
142: Wauquie-----	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope soil blowing	Limitation: large stones slope too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
142: Dolcan-----	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
Rock outcrop-----	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
143: Wetherill-----	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily too arid
144: Wetherill-----	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid
145: Wetherill-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope too arid
146: Yarts-----	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Limitation: too arid
147: Yarts-----	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
148: Zau-----	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
149: Zigzag-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: slope too arid depth to rock
150: Zigzag-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: slope too arid depth to rock
Sideshow-----	Severe: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: erodes easily percs slowly slope	Limitation: erodes easily slope too arid
151: Zyme-----	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: too arid depth to rock
152: Zyme-----	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: slope too arid depth to rock

Table 14.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
1: Ackmen-----	0-6	Loam	CL, CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	6-60	Silt loam, loam, clay loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-15
2: Ackmen-----	0-6	Loam	CL, CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	6-60	Silt loam, loam, clay loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-15
3: Arabrab-----	0-4	Loamy sand	SC-SM, SM	A-2	0-5	0-5	95-100	90-100	50-75	15-30	20-25	NP-5
	4-13	Sandy clay loam, clay loam, loam	SC-SM, SC, CL-ML, CL	A-6, A-4	0-5	0-5	85-100	80-100	70-90	40-80	25-35	5-15
	13-16	Clay loam, sandy clay loam	CL-ML, SC, CL, SC-SM	A-4, A-6	0-5	0-5	85-100	80-100	70-90	40-80	25-35	5-15
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
4: Arabrab-----	0-4	Loamy sand	SC-SM, SM	A-2	0-5	0-5	95-100	90-100	50-75	15-30	20-25	NP-5
	4-13	Sandy clay loam, clay loam, loam	CL-ML, CL, SC, SC-SM	A-6, A-4	0-5	0-5	85-100	80-100	70-90	40-80	25-35	5-15
	13-16	Clay loam, sandy clay loam	CL, SC-SM, CL-ML, SC	A-4, A-6	0-5	0-5	85-100	80-100	70-90	40-80	25-35	5-15
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
4: Longburn-----	0-1	Cobbly fine sandy loam	SC, SC-SM	A-2, A-4	0-10	15-45	75-90	70-85	50-70	30-45	25-30	5-10
	1-4	Very cobbly fine sandy loam			0-25	20-70	45-90	40-85	30-70	20-45	25-30	5-10
	4-17	Very cobbly clay loam, very cobbly sandy clay loam	GC, CL, SC	A-2, A-6	0-25	20-70	45-90	40-85	35-85	15-70	25-35	5-15
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
5: Archuleta-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-5	Loam	CL, CL-ML	A-4	0	0-10	85-100	80-100	70-95	50-75	25-30	5-10
	5-13	Clay loam, loam, gravelly	CL, SC-SM, CL-ML	A-4, A-6	0	0-15	60-100	55-100	50-75	35-65	25-35	5-15
	13-17	Unweathered bedrock			---	---	---	---	---	---	---	---
Sanchez-----	0-5	Stony sandy clay loam	SC-SM, GC, GC-GM, SC	A-4, A-2, A-1	20-50	10-20	45-75	40-70	30-50	15-35	25-30	5-10
	5-11	Stony clay loam, very stony sandy clay loam, very stony clay loam	GC, CL, SC	A-2, A-6	20-60	10-50	50-80	45-75	40-65	20-55	25-35	10-15
	11-15	Stony sandy clay loam	SC	A-2, A-6	10-45	10-25	75-85	70-80	50-70	30-45	30-35	10-15
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
6: Argiustolls-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-4	Extremely stony loam	GC-GM, SC, GC, SC-SM	A-2, A-1, A-4	30-80	10-50	20-65	15-60	15-55	10-40	25-30	5-10
	4-13	Extremely stony clay loam, loam, extremely stony loam	GC, SC	A-2, A-6, A-4	30-80	10-50	20-65	15-60	15-55	10-45	30-40	5-20
	13-20	Very stony clay loam, extremely stony loam	GC, CL, SC	A-2, A-4, A-6	25-60	5-40	45-75	40-70	35-70	30-55	30-40	5-20
	20-50	Cobbly clay loam, cobbly clay	CH, CL	A-6, A-7	0-10	15-40	80-95	75-90	70-85	55-80	35-65	15-40
	50-60	Clay	CH, CL	A-7	0-5	0-10	90-100	85-100	80-95	75-90	40-65	20-40
Haplustalfs-----	0-5	Very stony loam	GC, SC-SM, GC-GM, SC	A-2, A-4	25-70	5-50	45-85	40-80	35-70	25-50	25-30	5-10
	5-10	Very stony clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	25-60	5-40	45-75	40-70	35-70	30-55	30-35	10-15
	10-41	Very stony clay, very stony clay loam, very cobbly clay, clay	CL, GC	A-7, A-6	10-60	5-50	50-90	45-90	40-80	35-75	30-50	10-25
	41-60	Very stony clay, extremely stony clay, very cobbly clay loam	GC, CH, CL	A-6, A-7	10-60	10-50	50-85	45-85	40-80	35-75	30-60	10-40

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct					Pct	
	In				Pct	Pct					Pct	
7: Argiustolls-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-4	Extremely stony loam	GC-GM, SC, GC, SC-SM	A-2, A-1, A-4	30-80	10-50	20-65	15-60	15-55	10-40	25-30	5-10
	4-13	Extremely stony clay loam, loam, extremely stony loam	GC, SC	A-2, A-6, A-4	30-80	10-50	20-65	15-60	15-55	10-45	30-40	5-20
	13-20	Very stony clay loam, extremely stony loam	GC, CL, SC	A-2, A-4, A-6	25-60	5-40	45-75	40-70	35-70	30-55	30-40	5-20
	20-50	Cobbly clay loam, cobbly clay	CH, CL	A-6, A-7	0-10	15-40	80-95	75-90	70-85	55-80	35-65	15-40
	50-60	Clay	CH, CL	A-7	0-5	0-10	90-100	85-100	80-95	75-90	40-65	20-40
Haplustalfs-----	0-5	Very stony loam	GC-GM, SC, GC, SC-SM	A-2, A-4	25-70	5-50	45-85	40-80	35-70	25-50	25-30	5-10
	5-10	Very stony clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	25-60	5-40	45-75	40-70	35-70	30-55	30-35	10-15
	10-41	Very stony clay, very stony clay loam, very cobbly clay, clay	CL, GC	A-7, A-6	10-60	5-50	50-90	45-90	40-80	35-75	30-50	10-25
	41-60	Very stony clay, extremely stony clay, very cobbly clay loam	CH, GC, CL	A-6, A-7	10-60	10-50	50-85	45-85	40-80	35-75	30-60	10-40
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
8: Barx-----	0-3	Loam	CL, CL-ML	A-4	0	0	95-100	90-100	85-95	60-70	25-30	5-10
	3-31	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	85-95	60-75	25-30	5-10
	31-60	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	85-95	65-75	25-30	5-10
9: Barx-----	0-3	Loam	CL, CL-ML	A-4	0	0	95-100	90-100	85-95	60-70	25-30	5-10
	3-31	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	85-95	60-75	25-30	5-10
	31-60	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	85-95	65-75	25-30	5-10
10: Barx-----	0-3	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	90-100	50-60	15-25	NP-10
	3-9	Fine sandy loam	SC-SM, SM	A-4	0	0	100	100	90-100	40-50	15-25	NP-10
	9-23	Sandy clay loam	CL	A-6	0	0	100	100	90-100	50-70	35-45	15-25
	23-36	Sandy clay loam	CL	A-6	0	0	100	100	90-100	50-60	35-45	15-25
	36-55	Sandy clay loam	CL	A-6	0	0	100	100	90-100	50-60	25-35	10-15
	55-60	Sandy clay loam	CL	A-6	0	0	100	100	90-100	50-60	25-35	10-15
11: Barx-----	0-3	Loam	CL, CL-ML	A-4	0	0	95-100	90-100	85-95	60-70	25-30	5-10
	3-31	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	85-95	60-75	25-30	5-10
	31-60	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	85-95	65-75	25-30	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
11: Gapmesa-----	0-2	Very fine sandy loam	CL-ML, ML	A-4	0	0	90-100	90-100	85-95	50-65	20-25	NP-5
	2-21	Gravelly very fine sandy loam, loam	CL, CL-ML	A-4	0	0	70-100	65-100	55-95	50-60	25-30	5-10
	21-28	Gravelly sandy loam	SC-SM, SM, GC-GM, GM	A-2, A-4	0-5	0-10	60-80	55-75	35-50	20-30	20-25	NP-5
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
12: Battlerock-----	0-10	Clay loam	CL	A-6	0	0-5	85-100	80-100	75-100	60-75	30-35	10-15
	10-60	Clay loam, loam	CL	A-4, A-6	0	0-5	85-100	80-100	70-100	50-75	25-35	5-15
13: Beje-----	0-2	Loam	CL, CL-ML	A-4	0-5	0-5	95-100	90-95	75-90	55-70	25-30	5-10
	2-14	Loam	CL, CL-ML	A-4	0	0	90-95	85-90	70-85	50-70	25-30	5-10
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
Tragmon-----	0-5	Sandy loam	SC, SC-SM	A-2, A-4	0-5	0-10	85-100	80-100	50-70	25-40	25-30	5-10
	5-11	Loam	CL, CL-ML	A-4	0-5	0-15	85-100	75-100	70-95	50-75	25-30	5-10
	11-40	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0-5	0-15	85-100	75-100	70-95	50-75	25-35	5-15
	40-60	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0-5	0-15	85-100	75-100	70-95	50-75	25-30	5-10
14: Burnson-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-4	Loam	CL-ML, CL	A-4	0	0-5	95-100	90-100	85-95	65-75	25-30	5-10
	4-8	Clay, clay loam	CL	A-6, A-7	0	0-5	95-100	90-100	80-90	70-80	35-45	10-20
	8-44	Sandy clay, sandy clay loam, clay, clay loam	CH, CL, SC	A-6, A-7	0	0-5	85-100	80-100	70-90	45-80	35-60	15-35
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
15: Burnson, dry----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-4	Loam	CL-ML	A-4	0	0-5	95-100	90-100	85-95	65-75	25-30	5-10
	4-8	Clay, clay loam	CL	A-6, A-7	0	0-5	95-100	90-100	80-90	70-80	35-45	10-20
	8-44	Sandy clay, sandy clay loam, clay, clay loam	CH, SC, CL	A-6, A-7	0	0-5	85-100	80-100	70-90	45-80	35-60	15-35
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
16: Burnson-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-4	Clay loam	CL-ML, CL	A-4	0	0-5	95-100	90-100	85-95	65-75	25-30	5-10
	4-8	Clay, clay loam	CL	A-6, A-7	0	0-5	95-100	90-100	80-90	70-80	35-45	10-20
	8-44	Sandy clay, sandy clay loam, clay, clay loam	CH, CL, SC	A-6, A-7	0	0-5	85-100	80-100	70-90	45-80	35-60	15-35
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
Herm-----	0-6	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-95	50-75	25-30	5-10
	6-13	Clay loam	CL	A-6	---	0-5	95-100	90-100	80-100	65-80	35-50	15-25
	13-45	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	90-100	80-100	65-95	35-50	15-25
	45-60	Clay loam	CL	A-6	0-5	0-10	95-100	90-100	80-100	65-80	30-40	10-20
17: Cahona-----	0-5	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10
	5-25	Clay loam, loam	CL	A-6	0	0	95-100	95-100	90-100	60-80	25-35	5-15
	25-60	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10
18: Cahona-----	0-5	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10
	5-25	Clay loam, loam	CL	A-6	0	0	95-100	95-100	90-100	60-80	25-35	5-15
	25-60	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
19:												
Cahona-----	0-5	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10
	5-25	Clay loam, loam	CL	A-6	0	0	95-100	95-100	90-100	60-80	25-35	5-15
	25-60	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10
20:												
Cahona-----	0-5	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10
	5-25	Clay loam, loam	CL	A-6	0	0	95-100	95-100	90-100	60-80	25-35	5-15
	25-60	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10
Pulpit-----	0-10	Loam	CL, CL-ML	A-4	0	0	90-100	90-100	85-95	60-75	25-30	5-10
	10-20	Loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	95-100	80-95	30-35	5-15
	20-36	Loam, fine sandy loam, clay loam	CL, CL-ML, ML	A-4	0	0	90-100	90-100	90-95	65-80	20-30	NP-10
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
21:												
Cahona-----	0-5	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10
	5-25	Clay loam, loam	CL	A-6	0	0	95-100	95-100	90-100	60-80	25-35	5-15
	25-60	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10
Sharps-----	0-9	Loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	60-75	25-30	5-10
	9-19	Loam, clay loam, silty clay loam	CL	A-6	0	0	85-100	85-100	60-95	50-85	25-35	10-20
	19-30	Loam, clay loam, silty clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	50-80	25-30	5-10
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---
Wetherill-----	0-3	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	3-7	Loam, clay loam			0	0	100	100	85-95	60-75	25-35	5-15
	7-48	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-80	25-35	5-15
	48-60	Sandy clay loam, loam	CL, CL-ML	A-4	0	0	100	100	85-100	65-75	25-30	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
22: Claysprings-----	0-3	Very stony clay loam	CL	A-6	25-50	5-15	80-95	70-85	65-85	50-65	30-35	10-15
	3-18	Clay, clay loam	CH, CL	A-7	0-5	0-5	90-100	90-100	85-100	70-95	40-60	15-30
	18-28	Weathered bedrock			---	---	---	---	---	---	---	---
23: Collide-----	0-10	Clay loam	CL	A-6	0	0-5	85-100	80-100	75-100	60-80	30-35	10-15
	10-29	Clay, clay loam			0	0-5	85-100	80-100	75-100	60-95	35-50	15-25
	29-60	Clay, clay loam	CL	A-6, A-7	0-5	0-5	75-100	70-100	65-100	50-85	30-50	10-25
24: Collide-----	0-10	Clay loam	CL	A-6	0	0-5	85-100	80-100	75-100	60-80	30-35	10-15
	10-29	Clay, clay loam			0	0-5	85-100	80-100	75-100	60-95	35-50	15-25
	29-60	Clay, clay loam	CL	A-6, A-7	0-5	0-5	75-100	70-100	65-100	50-85	30-50	10-25
25: Collide-----	0-10	Clay loam	CL	A-6	0	0-5	85-100	80-100	75-100	60-80	30-35	10-15
	10-29	Clay, clay loam			0	0-5	85-100	80-100	75-100	60-95	35-50	15-25
	29-60	Clay, clay loam	CL	A-6, A-7	0-5	0-5	75-100	70-100	65-100	50-85	30-50	10-25
Collide, cobbly Substratum-----	0-2	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	80-90	65-75	25-30	5-10
	2-8	Silty clay loam	ML	A-4, A-6	0	0-5	95-100	90-100	90-100	85-95	30-50	5-20
	8-45	Clay loam, clay	CL	A-6, A-7	0-5	0-5	95-100	90-100	85-100	70-95	35-50	15-25
	45-60	Extremely cobbly sandy clay loam	GC, GC-GM	A-1, A-2	0-15	40-65	25-50	20-45	15-40	10-25	25-35	5-15
26: Collide-----	0-10	Clay loam	CL	A-6	0	0-5	85-100	80-100	75-100	60-80	30-35	10-15
	10-29	Clay, clay loam			0	0-5	85-100	80-100	75-100	60-95	35-50	15-25
	29-60	Clay, clay loam	CL	A-6, A-7	0-5	0-5	75-100	70-100	65-100	50-85	30-50	10-25
Collide, cobbly Substratum-----	0-2	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	80-90	65-75	25-30	5-10
	2-8	Silty clay loam	ML	A-4, A-6	0	0-5	95-100	90-100	90-100	85-95	30-50	5-20
	8-45	Clay loam, clay	CL	A-6, A-7	0-5	0-5	95-100	90-100	85-100	70-95	35-50	15-25
	45-60	Extremely cobbly sandy clay loam	GC, GC-GM	A-1, A-2	0-15	40-65	25-50	20-45	15-40	10-25	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
27:												
Dalmatian-----	0-39	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-95	55-75	25-30	5-10
	39-49	Sandy clay loam	CL-ML, CL, SC, SC-SM	A-4	0	0-5	95-100	90-100	70-90	35-65	25-30	5-10
	49-60	Gravelly sandy loam	SC-SM, SM	A-1, A-2	0	5-15	70-90	65-85	40-60	20-30	20-25	NP-5
Apmay-----	0-4	Loam	ML	A-4	0	0-5	95-100	90-100	75-95	55-75	30-35	5-10
	4-18	Clay loam	CL	A-6	0	0-5	95-100	90-100	80-100	65-80	35-40	10-15
	18-22	Sandy loam	SC-SM	A-2, A-4	0	0-5	95-100	90-100	55-70	30-40	25-30	5-10
	22-60	Extremely gravelly sandy loam, extremely gravelly loamy sand	GW-GM, GW	A-1	0-10	0-10	15-30	10-25	5-20	0-10	20-25	NP-5
Schrader-----	0-13	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-95	55-75	25-30	5-10
	13-17	Fine sandy loam	CL-ML, SC, SC-SM	A-4	0	0-5	95-100	90-100	65-85	35-55	25-30	5-10
	17-24	Sandy clay loam	CL, SC-SM, CL-ML, SC	A-2, A-6, A-4	0	0-5	95-100	90-100	70-90	30-55	25-40	5-20
	24-60	Fine sandy loam	CL-ML, SC, SC-SM	A-4	0	0-5	95-100	90-100	65-85	35-55	25-30	5-10
28:												
Dam-----	---	---	---	---	---	---	---	---	---	---	---	---
29:												
Endoaquolls-----	0-4	Loam	CL, CL-ML	A-4	0-5	0-5	90-100	85-100	75-90	55-70	25-30	5-10
	4-28	Sandy loam, fine sandy loam, loam	CL-ML, SC-SM, SC	A-2, A-4	0	0	90-100	85-100	55-75	30-70	25-30	5-10
	28-60	Extremely cobblely loamy sand, extremely cobblely sand	GP, SP, GW, SP-SM, SW, GP-GM	A-1	0-20	30-70	20-80	20-70	10-55	0-20	20-25	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
29: Ustifluvents----	0-6	Loam	CL, CL-ML	A-4	0	0-10	90-100	85-100	75-90	65-80	25-30	5-10
	6-17	Stratified fine sandy loam to loam	ML, SM	A-4	0	0-10	90-100	85-100	65-80	40-60	20-35	NP-10
	17-24	Stratified sandy loam to loam	SM	A-4	0	0-10	90-100	85-100	50-70	40-50	20-30	NP-5
	24-30	Stratified fine sandy loam to loam	ML, SM	A-4	0	0-10	90-100	85-100	65-80	40-60	20-35	NP-10
	30-60	Extremely cobbly sand, very gravelly sand	GW-GM, GW, SW, SW-SM	A-1	0-30	20-80	35-60	25-45	5-40	0-10	0-0	NP
30: Falconry-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-5	Gravelly fine sandy loam	GC-GM, GM	A-4, A-2	0-5	0-10	60-80	50-75	40-60	25-40	20-25	NP-5
	5-14	Gravelly sandy loam, sandy loam	SC-SM, SM	A-1, A-2	0-5	0-10	60-95	55-85	35-50	20-40	20-25	NP-5
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
31: Farb-----	0-3	Sandy loam	SC-SM	A-4	0	0	100	100	65-80	35-50	20-25	NP-5
	3-16	Sand, sandy loam, fine sandy loam	SC-SM	A-2, A-4	0	0	100	100	50-80	15-50	20-25	NP-5
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						
	In				Pct	Pct					Pct	
32: Fardraw-----	0-11	Loam	CL, CL-ML	A-4	0-10	0-10	90-95	85-95	70-90	50-70	25-30	5-10
	11-15	Very gravelly clay loam, very gravelly sandy clay	GC	A-2, A-7, A-6	0-10	0-25	35-55	30-50	30-50	15-40	35-45	15-20
	15-51	Very cobbly sandy clay, very cobbly clay	CL, GC	A-2, A-6, A-7	10-25	20-60	45-90	40-85	35-80	20-80	35-50	15-25
	51-60	Very cobbly sandy clay	GC, SC	A-2, A-7, A-6	10-25	30-60	50-95	40-85	35-80	20-50	35-45	15-20
33: Fardraw-----	0-9	Very cobbly loam	GC, GC-GM, SC-SM, SC	A-2, A-4	0-15	30-65	50-75	45-70	40-65	30-50	25-30	5-10
	9-13	Very cobbly clay loam	CL, GC, SC	A-6	0-15	30-65	50-75	45-70	40-65	35-55	30-35	10-15
	13-60	Very cobbly clay loam, very cobbly clay, very cobbly sandy clay loam	CL, GC	A-6, A-7	0-15	30-65	50-75	45-70	45-70	40-65	35-50	15-25
34: Fardraw-----	0-9	Very cobbly loam	GC-GM, SC, GC, SC-SM	A-2, A-4	0-15	30-65	50-75	45-70	40-65	30-50	25-30	5-10
	9-13	Very cobbly clay loam	CL, GC, SC	A-6	0-15	30-65	50-75	45-70	40-65	35-55	30-35	10-15
	13-60	Very cobbly clay loam, very cobbly clay, very cobbly sandy clay loam	CL, GC	A-6, A-7	0-15	30-65	50-75	45-70	45-70	40-65	35-50	15-25

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
35: Fardraw-----	0-9	Very cobbly loam	GC-GM, SC, GC, SC-SM	A-2, A-4	0-15	30-65	50-75	45-70	40-65	30-50	25-30	5-10
	9-13	Very cobbly clay loam	CL, GC, SC	A-6	0-15	30-65	50-75	45-70	40-65	35-55	30-35	10-15
	13-60	Very cobbly clay loam, very cobbly clay, very cobbly sandy clay loam	CL, GC	A-6, A-7	0-15	30-65	50-75	45-70	45-70	40-65	35-50	15-25
Granath-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-14	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-100	60-75	25-30	5-10
	14-60	Clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	85-100	60-80	25-35	5-15
36: Fivepine-----	0-3	Flaggy loam	CL, CL-ML	A-4	10-30	10-20	85-95	80-90	75-85	55-70	25-30	5-10
	3-9	Flaggy clay loam	CL	A-6	10-30	10-20	85-95	80-90	80-90	65-75	30-40	10-20
	9-12	Flaggy clay loam, flaggy clay	CL	A-6, A-7	10-30	10-20	85-95	80-90	80-90	65-80	30-45	15-25
	12-15	Flaggy clay	CL	A-7	10-30	10-20	85-95	80-90	80-90	70-90	40-50	20-30
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Nortez-----	0-3	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	75-90	55-70	25-30	5-10
	3-10	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	65-75	30-40	10-20
	10-32	Clay loam, clay	CH, CL	A-7	0	0-5	90-100	85-100	80-100	70-90	40-65	25-40
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---
37: Fluvaquents----	0-8	Variable	ML, CL, SC, SM	A-2, A-4, A-6	0	0-10	55-100	50-90	25-80	5-65	15-40	NP-25
	8-60	Stratified very gravelly sand to sandy loam	GM, SM	A-1	0	0-25	45-70	35-65	15-40	5-20	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
37: Haplustolls-----	0-4	Sandy loam	SC, SC-SM	A-2, A-4	0	0-5	80-100	75-100	50-70	25-40	25-30	5-10
	4-19	Fine sandy loam, loam	CL, CL-ML	A-4	0	0-5	90-100	75-100	75-90	55-75	20-30	5-10
	19-24	Gravelly loamy sand, cobbly sandy loam	GM, GC-GM, SC-SM, SM	A-2, A-1, A- 3, A-4	0-5	0-20	60-80	55-75	10-70	5-50	20-25	NP-5
	24-60	Extremely cobbly sand, extremely gravelly loamy sand, extremely cobbly sandy loam	GC-GM, SC-SM, GM, GP	A-2, A-1, A- 3, A-4	0-15	10-60	45-75	35-70	5-65	0-50	20-25	NP-5
38: Fluvents-----	0-6	Variable			---	---	---	---	---	---	---	---
	6-60	Stratified very gravelly sand to loamy sand	GP, GW-GM, GP-GM, GW	A-2, A-1, A-3	0-10	0-20	35-85	30-70	20-60	0-35	0-14	NP-5
Fluvaquents-----	0-8	Variable	ML, CL, SC, SM	A-2, A-6, A-4	0	0-10	55-100	50-90	25-80	5-65	15-40	NP-25
	8-60	Stratified very gravelly sand to sandy loam	GM, SM	A-1	0	0-25	45-70	35-65	15-40	5-20	---	NP
39: Fughes-----	0-7	Loam	CL, CL-ML	A-4	0-5	0-5	90-100	90-100	75-95	60-75	25-30	5-10
	7-26	Clay loam	CL	A-6	0-5	0-5	90-100	80-100	80-100	65-95	35-40	15-20
	26-44	Clay, clay loam	CL	A-7, A-6	0-5	0-10	90-100	90-100	80-100	70-90	35-50	15-25
	44-60	Clay loam, clay	CL, CH	A-6, A-7	0-5	0-5	90-100	90-100	80-100	70-90	35-60	20-40
40: Fughes-----	0-8	Loam	CL, CL-ML	A-4	0-5	0-5	90-100	90-100	75-95	60-95	25-30	5-10
	8-26	Clay loam	CL	A-6	0-5	0-5	90-100	90-100	80-100	65-80	30-40	10-20
	26-44	Clay, clay loam	CL	A-7, A-6	0-5	0-10	90-100	90-100	80-100	70-90	35-50	15-25
	44-60	Clay loam, clay, cobbly clay	CH, CL	A-7, A-6	0-5	0-35	80-100	75-100	70-100	60-90	35-60	20-40

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
40: Herm-----	0-6	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-95	50-75	25-30	5-10
	6-13	Clay loam	CL	A-6	0	0-5	95-100	90-100	80-100	65-90	30-40	10-20
	13-45	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	90-100	80-100	65-95	35-50	15-25
	45-60	Clay loam	CL	A-6	0-5	0-10	95-100	90-100	80-100	65-80	30-40	10-20
41: Fughes-----	0-7	Loam	CL, CL-ML	A-4	5-15	0-5	90-100	85-100	75-95	50-75	25-30	5-10
	7-26	Clay loam	CL	A-6	0-5	0-5	90-100	85-100	80-100	60-80	30-40	10-20
	26-34	Clay, clay loam	CL	A-6, A-7	0-5	0-10	90-100	85-100	80-100	60-80	35-50	15-25
	34-44	Clay loam, clay	CL	A-7, A-6	0-5	0-10	90-100	85-100	80-100	60-90	35-50	15-25
	44-60	Clay loam, clay	CH, CL	A-7, A-6	0-5	0-5	90-100	85-100	80-100	60-90	35-60	20-40
Sheek-----	0-2	Very cobbly clay loam	GC	A-2, A-6	0-10	20-60	55-65	50-60	35-60	30-50	30-35	10-15
	2-7	Gravelly clay loam	CL, SC	A-6	0-5	0-10	65-85	60-80	45-80	40-60	30-35	10-15
	7-20	Very cobbly clay loam	CL, SC	A-2, A-6	0-10	20-60	75-85	70-80	35-80	30-75	30-35	10-15
	20-29	Very cobbly loam	CL, CL-ML, SC-SM, SC	A-4	0-10	20-60	50-85	45-80	35-80	35-65	25-30	5-10
	29-46	Cobbly clay loam	CL	A-6	0-10	15-40	75-85	70-80	65-80	50-75	30-35	10-15
	46-60	Very cobbly loam	CL-ML, GC-GM, CL, SC	A-2, A-4	0-10	20-60	65-80	60-75	30-75	30-70	25-30	5-10
42: Gladel-----	0-5	Flaggy fine sandy loam	SC, SC-SM	A-2, A-4	5-40	5-30	75-90	70-85	50-70	30-45	25-30	5-10
	5-10	Flaggy fine sandy loam, fine sandy loam	ML, SC-SM, SM	A-4	0-40	0-30	75-100	70-100	50-85	30-55	20-25	NP-5
	10-15	Flaggy fine sandy loam, fine sandy loam	ML, SM, SC-SM	A-4	0-40	0-30	75-100	70-100	50-85	30-55	20-25	NP-5
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
42: Pulpit-----	0-10	Loam	CL, CL-ML	A-4	0	0	90-100	90-100	85-95	60-75	25-30	5-10
	10-20	Loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	95-100	80-95	30-35	5-15
	20-36	Loam, fine sandy loam, clay loam	CL, CL-ML, ML	A-4	0	0	90-100	90-100	90-95	65-80	20-30	NP-10
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
43: Goldbug-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-21	Very stony fine sandy loam	SC, SC-SM	A-2	25-50	20-30	65-90	55-85	45-70	20-40	20-25	5-10
	21-29	Stony sandy clay loam, stony fine sandy loam	SC, SC-SM	A-6, A-4, A-2	15-45	10-30	75-90	75-85	50-75	25-45	25-35	5-15
	29-60	Stony sandy clay, stony clay, stony clay loam	CL, SC	A-6, A-7	15-30	10-20	75-90	70-85	60-85	35-65	35-50	15-25
44: Granath-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-14	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-100	60-75	25-30	5-10
	14-60	Clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	85-100	60-80	25-35	5-15
45: Granath-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-14	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-100	60-75	25-30	5-10
	14-60	Clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	85-100	60-80	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
46: Granath-----	0-10	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	90-100	60-75	25-30	5-10
	10-40	Clay loam, loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	70-90	25-35	5-15
	40-60	Sandy clay loam, clay loam, loam	CL, CL-ML, SC-SM, SC	A-6, A-4	0	0	100	100	85-100	40-80	25-35	5-15
Fughes-----	0-7	Loam	CL, CL-ML	A-4	5-15	0-5	90-100	85-100	75-95	50-75	25-30	5-10
	7-26	Clay loam	CL	A-6	0-5	0-5	90-100	85-100	80-100	60-80	30-40	10-20
	26-34	Clay, clay loam	CL	A-6, A-7	0-5	0-10	90-100	85-100	80-100	60-80	35-50	15-25
	34-44	Clay loam, clay	CL	A-7, A-6	0-5	0-10	90-100	85-100	80-100	60-90	35-50	15-25
	44-60	Clay loam, clay	CH, CL	A-7, A-6	0-5	0-5	90-100	85-100	80-100	60-90	35-60	20-40
47: Granath-----	0-10	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	90-100	60-75	25-30	5-10
	10-40	Clay loam, loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	70-90	25-35	5-15
	40-60	Sandy clay loam, clay loam, loam	SC-SM, CL, SC, CL-ML	A-6, A-4	0	0	100	100	85-100	40-80	25-35	5-15
Nortez-----	0-3	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	75-90	55-70	25-30	5-10
	3-10	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	65-75	30-40	10-20
	10-32	Clay loam, clay	CH, CL	A-7	0	0-5	90-100	85-100	80-100	70-90	40-65	25-40
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---
48: Granath-----	0-10	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	90-100	60-75	25-30	5-10
	10-40	Clay loam, loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	70-90	25-35	5-15
	40-60	Sandy clay loam, clay loam, loam	SC-SM, SC, CL, CL-ML	A-4, A-6	0	0	100	100	85-100	40-80	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
48: Ormiston-----	0-7	Loam	CL, CL-ML	A-4	0-5	0-10	90-100	85-100	75-95	50-75	25-30	5-10
	7-32	Extremely stony clay, stony clay loam, very stony clay loam, extremely stony clay loam	GC, CH, CL	A-2, A-6, A-7	25-50	20-50	50-85	40-80	40-75	30-65	30-65	10-40
	32-44	Stony clay loam, very stony clay loam	GC	A-6	20-60	10-40	45-90	40-85	35-85	30-70	30-40	10-20
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
Fivepine-----	0-3	Flaggy loam	CL, CL-ML	A-4	10-30	10-20	85-95	80-90	75-85	55-70	25-30	5-10
	3-9	Flaggy clay loam	CL	A-6	10-30	10-20	85-95	80-90	80-90	65-75	30-40	10-20
	9-12	Flaggy clay loam, flaggy clay	CL	A-6, A-7	10-30	10-20	85-95	80-90	80-90	65-80	30-45	15-25
	12-15	Flaggy clay	CL	A-7	10-30	10-20	85-95	80-90	80-90	70-90	40-50	20-30
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
49: Herm-----	0-7	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-95	50-75	25-30	5-10
	7-34	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	90-100	80-100	65-95	35-50	15-25
	34-60	Clay loam	CL	A-6	0-5	0-10	95-100	90-100	80-100	65-80	30-40	10-20
50: Herm-----	0-1	Very cobbly loam	CL, CL-ML, GC-GM, GC	A-2, A-4	0-25	20-70	45-90	40-85	35-80	25-65	25-30	5-10
	1-10	Gravelly loam	CL-ML, CL, GC-GM, SC	A-4	0-10	0-35	60-80	55-75	50-70	35-55	25-30	5-10
	10-60	Clay, clay loam	CL	A-6	0	0	100	100	90-100	70-80	30-40	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
51: Herm-----	0-6	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-95	50-75	25-30	5-10
	6-13	Clay loam			0	0-5	95-100	90-100	80-100	65-90	30-40	10-20
	13-45	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	90-100	80-100	65-95	35-50	15-25
	45-60	Clay loam	CL	A-6	0-5	0-10	95-100	90-100	80-100	65-80	30-40	10-20
Pagoda-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-5	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	70-90	60-75	25-30	5-10
	5-21	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	90-100	80-95	70-90	30-50	15-25
	21-60	Clay loam, clay	CL	A-7, A-6	0-5	0-5	95-100	90-100	80-95	70-90	30-50	10-20
52: Hesperus-----	0-11	Loam	CL, CL-ML	A-4	0	0-5	90-100	90-100	80-95	65-85	25-30	5-10
	11-44	Clay loam, loam, silty clay loam	CL	A-6	0	0-5	85-100	80-100	70-95	60-85	25-35	10-20
	44-60	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0-5	0-10	85-100	80-95	70-90	50-80	25-35	5-15
53: Hesperus-----	0-11	Loam	CL, CL-ML	A-4	0	0-5	90-100	90-100	80-95	65-85	25-30	5-10
	11-44	Clay loam, loam, silty clay loam	CL	A-6	0	0-5	85-100	80-100	70-95	60-85	25-35	10-20
	44-60	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0-5	0-10	85-100	80-95	70-90	50-80	25-35	5-15
54: Hesperus-----	0-11	Loam	CL, CL-ML	A-4	0	0-5	90-100	90-100	80-95	65-85	25-30	5-10
	11-44	Clay loam, loam, silty clay loam	CL	A-6	0	0-5	85-100	80-100	70-95	60-85	25-35	10-20
	44-60	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0-5	0-10	85-100	80-95	70-90	50-80	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
55: Hesperus-----	0-11	Sandy loam	SC-SM, SM	A-2, A-4	0	0	85-100	80-95	50-70	25-50	20-25	NP-5
	11-44	Clay loam, loam, silty clay loam	CL	A-6	0	0-5	85-100	80-100	70-95	60-85	25-35	10-20
	44-60	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0-5	0-10	85-100	80-95	70-90	50-80	25-35	5-15
56: Ilex-----	0-2	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-95	55-75	25-30	5-10
	2-22	Clay loam, clay	CL	A-6	0	0-5	95-100	90-100	80-100	60-95	35-50	15-25
	22-37	Clay loam, clay, loam			0	0-5	95-100	90-100	85-100	60-95	20-50	NP-25
	37-60	Loam, clay loam, clay	CL	A-6	0	0-5	95-100	90-100	85-100	60-95	20-45	NP-20
57: Ilex-----	0-2	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-95	55-75	25-30	5-10
	2-22	Clay loam, clay	CL	A-6	0	0-5	95-100	90-100	80-100	60-95	35-50	15-25
	22-37	Clay, loam, clay loam			0	0-5	95-100	90-100	85-100	60-95	20-50	NP-25
	37-60	Loam, clay loam, clay	CL	A-6	0	0-5	95-100	90-100	85-100	60-95	20-45	NP-20
58: Ilex-----	0-2	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-95	55-75	25-30	5-10
	2-22	Clay loam, clay	CL	A-6	0	0-5	95-100	90-100	80-100	60-95	35-50	15-25
	22-37	Clay, loam, clay loam			0	0-5	95-100	90-100	85-100	60-95	20-50	NP-25
	37-60	Loam, clay loam, clay	CL	A-6	0	0-5	95-100	90-100	85-100	60-95	20-45	NP-20
Granath-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-14	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-100	60-75	25-30	5-10
	14-60	Clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	85-100	60-80	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
59:												
Ilex-----	0-2	Loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-95	55-75	25-30	5-10
	2-22	Clay loam, clay	CL	A-6	0	0-5	95-100	90-100	80-100	60-95	35-50	15-25
	22-37	Clay, clay loam, loam			0	0-5	95-100	90-100	85-100	60-95	20-50	NP-25
	37-60	Clay loam, loam, clay	CL	A-6	0	0-5	95-100	90-100	85-100	60-95	20-45	NP-20
Granath-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-14	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-100	60-75	25-30	5-10
	14-60	Clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	85-100	60-80	25-35	5-15
60:												
Ilex-----	0-2	Stony loam	CL, CL-ML	A-4	10-35	5-25	75-90	70-85	60-80	45-65	25-30	5-10
	2-22	Clay loam, clay	CL	A-6	0	0-5	95-100	90-100	80-100	60-95	35-50	15-25
	22-37	Clay, clay loam, loam			0	0-5	95-100	90-100	85-100	60-95	20-50	NP-25
	37-60	Loam, clay loam, clay	CL	A-6	0	0-5	95-100	90-100	85-100	60-95	20-45	NP-20
Pramiss-----	0-3	Very stony loam	GC, GC-GM	A-4	10-50	10-50	60-70	55-65	45-55	35-45	25-30	5-10
	3-16	Clay loam, clay	CH, CL	A-7	0-15	0-15	95-100	90-100	85-100	75-95	40-60	15-30
	16-31	Clay loam, clay	CH, CL	A-7	0-15	0-15	90-100	85-95	80-90	75-85	40-60	15-30
	31-41	Weathered bedrock			---	---	---	---	---	---	---	---
Falconry-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-5	Gravelly fine sandy loam	GC-GM, GM	A-4, A-2	0-5	0-10	60-80	50-75	40-60	25-40	20-25	NP-5
	5-14	Gravelly sandy loam, sandy loam	SC-SM, SM	A-1, A-2	0-5	0-10	60-95	55-85	35-50	20-40	20-25	NP-5
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
63: Beje-----	0-2	Loam	CL, CL-ML	A-4	0-5	0-5	95-100	90-95	75-90	55-70	25-30	5-10
	2-6	Loam	CL, CL-ML	A-4	0	0	90-95	85-90	70-85	50-70	25-30	5-10
	6-14	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-95	80-90	50-80	25-35	5-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
64: Lazear-----	0-5	Very stony loam	GC-GM, SC-SM	A-2, A-4	25-60	15-25	50-80	40-80	35-60	25-50	25-30	5-10
	5-15	Stony loam, loam, clay loam	CL, CL-ML	A-6	0-30	10-25	75-95	70-90	50-70	45-70	25-35	5-15
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
65: Lillings-----	0-2	Silt loam	ML	A-4	0	0-5	95-100	90-100	90-100	70-90	30-35	5-10
	2-60	Stratified silt loam to silty clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	90-100	65-85	25-35	5-15
66: Lillings-----	0-2	Silty clay loam	ML	A-6	0	0-5	95-100	90-100	90-100	75-95	35-40	10-15
	2-60	Stratified silt loam to silty clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	90-100	65-85	25-35	5-15
67: Lillings-----	0-2	Silty clay loam	ML	A-6	0	0-5	95-100	90-100	90-100	75-95	35-40	10-15
	2-60	Stratified silt loam to silty clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	90-100	65-85	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
68: Longburn-----	0-1	Cobbly fine sandy loam	SC, SC-SM	A-2, A-4	0-10	15-45	75-90	70-85	50-70	30-45	25-30	5-10
	1-4	Very cobbly fine sandy loam	SC-SM, SC	A-2, A-4	0-25	20-70	45-90	40-85	30-70	20-45	25-30	5-10
	4-17	Very cobbly clay loam, very cobbly sandy clay loam	CL, GC, SC	A-2, A-6	0-25	20-70	45-90	40-85	35-85	15-70	25-35	5-15
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
	Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---
69: Longburn-----	0-1	Cobbly fine sandy loam	SC, SC-SM	A-2, A-4	0-10	15-45	75-90	70-85	50-70	30-45	25-30	5-10
	1-4	Very cobbly fine sandy loam	SC, SC-SM	A-2, A-4	0-25	20-70	45-90	40-85	30-70	20-45	25-30	5-10
	4-17	Very cobbly clay loam, very cobbly sandy clay loam	GC, CL, SC	A-2, A-6	0-25	20-70	45-90	40-85	35-85	15-70	25-35	5-15
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
	Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---
70: Mack-----	0-13	Fine sandy loam	CL-ML, SC, SC-SM	A-4	0	0	90-100	80-100	70-90	40-55	25-30	5-10
	13-33	Sandy clay loam, clay loam			0	0	90-100	80-100	70-100	35-70	25-35	5-15
	33-60	Sandy loam, sandy clay loam	SC, SM, SC-SM	A-4	0	0	85-100	80-100	50-65	35-50	20-30	NP-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
71: Mikett-----	0-8	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
	8-60	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	75-95	55-80	25-35	5-15
72: Mikett-----	0-8	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
	8-60	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
73: Mikim-----	0-3	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
	3-15	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
	15-32	Stratified fine sandy loam to clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	70-95	50-80	25-35	5-15
	32-60	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
74: Mikim-----	0-3	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
	3-15	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
	15-32	Stratified fine sandy loam to clay loam	CL, SC, CL-ML	A-4	0	0-5	95-100	90-100	70-95	45-80	25-35	5-15
	32-60	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
75: Mikim-----	0-3	Loam	CL-ML	A-4	0	0-5	95-100	90-100	80-95	55-75	25-30	5-10
	3-15	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
	15-32	Stratified fine sandy loam to clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	70-95	50-80	25-35	5-15
	32-60	Clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	65-80	30-35	10-15
76: Morefield-----	0-2	Loam	CL-ML	A-4	0	0	100	100	85-100	60-80	25-30	5-10
	2-24	Clay loam, loam	CL, CL-ML	A-6	0	0	100	100	85-100	60-80	25-35	5-15
	24-60	Loam, clay loam	CL, CL-ML	A-6	0	0	100	100	85-100	60-80	25-35	5-15
77: Morefield-----	0-2	Loam	CL-ML	A-4	0	0	100	100	85-100	60-80	25-30	5-10
	2-24	Clay loam, loam	CL, CL-ML	A-6	0	0	100	100	85-100	60-80	25-35	5-15
	24-60	Loam, clay loam	CL, CL-ML	A-6	0	0	100	100	85-100	60-80	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
80: Beje-----	0-2	Loam	CL, CL-ML	A-4	0-5	0-5	95-100	90-95	75-90	55-70	25-30	5-10
	2-6	Loam	CL, CL-ML	A-4	0	0	90-95	85-90	70-85	50-70	25-30	5-10
	6-14	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-95	80-90	50-80	25-35	5-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
81: Ormiston-----	0-7	Loam	CL, CL-ML	A-4	0-5	0-10	90-100	85-100	75-95	50-75	25-30	5-10
	7-32	Stony clay loam, very stony clay loam, very stony clay, extremely stony clay loam	CH, GC, CL	A-7, A-2, A-6	25-50	20-50	50-85	40-80	40-75	30-65	30-65	10-40
	32-44	Stony clay loam, very stony clay loam	CL	A-6	10-45	15-30	75-90	70-85	65-85	50-70	30-40	10-20
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
Fivepine-----	0-3	Flaggy loam	CL, CL-ML	A-4	10-30	10-20	85-95	80-90	75-85	55-70	25-30	5-10
	3-9	Flaggy clay loam	CL	A-6	10-30	10-20	85-95	80-90	80-90	65-75	30-40	10-20
	9-12	Flaggy clay loam, flaggy clay	CL	A-6, A-7	10-30	10-20	85-95	80-90	80-90	65-80	30-45	15-25
	12-15	Flaggy clay	CL	A-7	10-30	10-20	85-95	80-90	80-90	70-90	40-50	20-30
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
84: Payter-----	0-11	Sandy loam	SC-SM, SM	A-2, A-4	0	0-5	95-100	90-100	55-70	25-40	20-25	NP-10
	11-39	Sandy loam	SC-SM	A-2, A-4	0	0-5	95-100	90-100	55-70	25-40	20-25	5-10
	39-60	Sandy loam	SC-SM	A-2, A-4	0	0-5	95-100	90-100	55-70	25-40	20-25	5-10
85: Pinacol-----	0-7	Loam	CL, CL-ML	A-4	0	0-10	90-100	90-100	75-95	55-75	25-30	5-10
	7-21	Clay loam, gravelly clay	CL, GC	A-6, A-7	0-5	0-10	60-100	55-90	50-85	40-80	35-50	15-25
	21-38	Very cobbly clay, extremely cobbly clay, very cobbly clay loam	CH, CL, GC	A-7	0-15	25-70	50-80	45-75	40-65	30-60	35-65	15-40
	38-60	Extremely cobbly sandy clay loam, extremely cobbly sandy clay, very cobbly clay loam	GC, SC	A-2, A-6	0-15	35-70	45-70	40-65	30-50	20-45	25-40	5-20
86: Pinacol-----	0-7	Loam	CL, CL-ML	A-4	0	0-10	90-100	90-100	75-95	55-75	25-30	5-10
	7-21	Clay loam, gravelly clay	CL, GC	A-6, A-7	0-5	0-10	60-100	55-90	50-85	40-80	35-50	15-25
	21-38	Very cobbly clay, extremely cobbly clay, very cobbly clay loam	CL, CH, GC	A-7	0-15	25-70	50-80	45-75	40-65	30-60	35-65	15-40
	38-60	Extremely cobbly sandy clay loam, extremely cobbly sandy clay, very cobbly clay loam	GC, SC	A-2, A-6	0-15	35-70	45-70	40-65	30-50	20-45	25-40	5-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
87: Pits-----	0-60	Variable			---	---	---	---	---	---	---	---
88: Pogo-----	0-2	Loam	CL, CL-ML	A-4	0	0	80-100	75-100	70-95	55-75	25-30	5-10
	2-60	Stratified fine sandy loam to clay loam	CL, SC	A-6	0	0	85-100	80-100	50-100	10-100	20-40	NP-20
89: Pramiss-----	0-3	Very cobbly loam	GC, GC-GM	A-4	5-15	10-50	60-70	55-65	45-55	35-45	25-30	5-10
	3-16	Clay loam, clay	CH, CL	A-7	0-15	0-15	95-100	90-100	85-100	75-95	40-60	15-30
	16-31	Clay loam, clay	CH, CL	A-7	0-15	0-15	90-100	85-95	80-95	75-85	40-60	15-30
	31-41	Weathered bedrock			---	---	---	---	---	---	---	---
90: Pramiss-----	0-3	Loam	CL-ML	A-4	0-5	0	85-100	80-100	70-95	50-75	25-30	5-10
	3-16	Clay loam, clay	CH, CL	A-7	0-5	0-5	95-100	90-100	85-100	75-95	40-60	15-30
	16-31	Clay loam, clay	CH, CL	A-7	0-5	0-5	90-95	85-95	80-90	75-85	40-60	15-30
	31-41	Weathered bedrock			---	---	---	---	---	---	---	---
Granath-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-14	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-100	60-75	25-30	5-10
	14-60	Clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	85-100	60-80	25-35	5-15
91: Prater-----	0-1	Loam	CL, CL-ML	A-4	0-10	0-15	85-95	80-95	75-95	50-75	25-30	5-10
	1-3	Loam, clay loam	CL	A-6	0-10	0-15	85-95	80-95	60-85	45-70	25-35	5-15
	3-9	Clay, clay loam			0-10	0-15	85-95	80-95	65-85	50-85	30-45	10-20
	9-21	Clay loam, clay	CL	A-6, A-7	0-10	0-15	85-95	80-95	75-85	50-85	35-45	15-20
	21-60	Clay, clay loam	CL	A-6, A-7	0-10	5-15	90-100	85-100	75-85	50-85	35-45	15-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
92: Prater-----	0-1	Loam	CL, CL-ML	A-4	0-5	0-15	85-100	80-100	70-95	50-75	25-30	5-10
	1-3	Loam, clay loam	CL	A-6	0-10	0-15	85-95	80-95	60-85	45-70	25-35	5-15
	3-9	Clay, clay loam			0-10	0-15	85-95	80-95	65-85	50-85	30-45	10-20
	9-21	Clay loam, clay	CL	A-6, A-7	0-10	0-15	85-95	80-95	75-85	50-85	35-45	15-20
	21-60	Clay, clay loam	CL	A-6, A-7	0-10	5-15	90-100	85-100	75-85	50-85	35-45	15-20
Dolcan-----	0-2	Extremely cobbly fine sandy loam	GM, GC-GM, SC-SM, SM	A-1, A-2, A- 4, A-3	0-30	30-85	20-80	15-75	10-65	5-40	20-25	NP-5
	2-11	Loam, clay loam, cobbly clay loam	CL	A-6	0-10	0-35	75-100	70-100	65-100	60-80	30-35	10-15
	11-21	Weathered bedrock			---	---	---	---	---	---	---	---
93: Pulpit-----	0-5	Loam	CL, CL-ML	A-4	0	0	90-100	90-100	85-95	60-75	25-30	5-10
	5-21	Clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	95-100	70-95	30-35	10-15
	21-35	Loam, fine sandy loam, clay loam	CL, CL-ML, ML	A-4	0	0	90-100	85-100	60-95	45-80	20-30	NP-10
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
94: Pulpit-----	0-10	Loam	CL, CL-ML	A-4	0	0	90-100	90-100	85-95	60-75	25-30	5-10
	10-20	Loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	95-100	80-95	30-35	5-15
	20-36	Loam, fine sandy loam, clay loam	CL-ML, CL, ML	A-4	0	0	90-100	90-100	90-95	65-80	20-30	NP-10
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
95: Pulpit-----	0-10	Loam	CL, CL-ML	A-4	0	0	90-100	90-100	85-95	60-75	25-30	5-10
	10-20	Loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	95-100	80-95	30-35	5-15
	20-36	Loam, fine sandy loam, clay loam	CL-ML, CL, ML	A-4	0	0	90-100	90-100	90-95	65-80	20-30	NP-10
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
96: Purcella-----	0-4	Loam	CL, CL-ML	A-4	0-5	0-5	85-100	80-100	70-85	55-75	25-30	5-10
	4-11	Gravelly loam	CL-ML, SC-SM	A-4	0-5	0-10	60-80	55-75	50-70	40-55	25-30	5-10
	11-41	Extremely cobbley clay loam, extremely cobbley sandy clay loam, extremely cobbley loam	GC	A-2, A-6	5-10	55-80	40-60	35-55	30-50	20-40	25-35	5-15
	41-60	Extremely cobbley sandy loam, very cobbley loam	GM, SM	A-1	5-10	55-80	45-60	35-55	25-35	15-20	20-25	NP-5
97: Ramper-----	0-3	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	65-75	30-40	10-15
	3-60	Stratified sandy loam to clay loam	CL-ML, CL, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	55-95	45-75	25-40	5-15
98: Ramper-----	0-3	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	75-90	60-70	20-30	NP-10
	3-60	Stratified sandy loam to clay loam	CL, CL-ML, SC-SM, SC	A-4, A-6	0	0-5	90-100	85-100	55-95	45-75	25-40	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
99: Ravola-----	0-9	Clay loam	CL	A-6	0	0-5	95-100	95-100	80-95	65-75	30-35	10-15
	9-60	Stratified loamy sand to clay loam	CL, CL-ML, SC-SM, SC	A-4, A-6	0	0-5	95-100	80-100	50-75	35-75	25-35	5-15
100: Recapture-----	0-7	Fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	95-100	90-100	70-85	40-55	20-30	NP-10
	7-26	Loam, clay loam, sandy clay loam	CL	A-4	0	0	95-100	90-100	70-90	40-80	25-30	5-10
	26-60	Silt loam, very fine sandy loam, loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	75-100	45-90	20-30	NP-10
101: Recapture-----	0-6	Sandy loam	SC, SM, SC-SM	A-2, A-4	0-5	0-5	80-100	75-100	45-70	25-40	20-30	NP-10
	6-13	Clay loam	CL	A-6	0-5	0-5	80-100	75-100	70-85	55-80	30-40	10-20
	13-17	Sandy loam	SC, SM, SC-SM	A-2, A-4	0-5	0-5	80-100	75-100	45-70	25-40	20-30	NP-10
	17-38	Sandy clay loam, clay loam	CL, SC	A-6	0-5	0-5	80-100	75-100	65-85	40-80	30-40	10-20
	38-60	Sandy loam	SC, SM, SC-SM	A-2, A-4	0-5	0-5	80-100	75-100	45-70	25-40	20-30	NP-10
102: Ricot-----	0-12	Loam	CL, CL-ML	A-4	0-5	0-5	85-100	80-100	70-95	50-75	25-30	5-10
	12-16	Loam, clay loam	CL	A-6	0-5	0-5	85-100	80-100	70-95	50-80	25-35	10-20
	16-34	Clay, clay loam	CL	A-6, A-7	0-15	0-15	85-100	80-90	75-90	60-85	35-45	15-20
	34-60	Stony clay, stony clay loam	CL	A-6, A-7	15-40	15-40	80-90	75-90	65-90	55-80	35-45	15-20
103: Ricot-----	0-12	Loam	CL, CL-ML	A-4	0-5	0-5	85-100	80-100	70-95	50-75	25-30	5-10
	12-16	Loam, clay loam	CL	A-6	0-5	0-5	85-100	80-100	70-95	50-80	25-35	10-20
	16-34	Clay, clay loam	CL	A-6, A-7	0-15	0-15	85-100	80-90	75-90	60-85	35-45	15-20
	34-60	Stony clay, stony clay loam	CL	A-6, A-7	15-40	15-40	80-90	75-90	65-90	55-80	35-45	15-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
104: Ricot-----	0-12	Loam	CL, CL-ML	A-4	0-5	0-5	85-100	80-100	70-95	50-75	25-30	5-10
	12-16	Loam, clay loam	CL	A-6	0-5	0-5	85-100	80-100	70-95	50-80	25-35	10-20
	16-34	Clay, clay loam	CL	A-6, A-7	0-15	0-15	85-100	80-90	75-90	60-85	35-45	15-20
	34-60	Stony clay, stony clay loam	CL	A-6, A-7	15-40	15-40	80-90	75-90	65-90	55-80	35-45	15-20
105: Rizno-----	0-5	Very fine sandy loam	CL-ML	A-4	0	0	100	100	70-100	50-65	25-30	5-10
	5-13	Loam, fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0-10	85-100	80-100	55-85	35-55	20-25	NP-5
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Gapmesa-----	0-2	Very fine sandy loam	ML, SC-SM, CL-ML, SM	A-4	0	0	90-100	90-100	70-95	40-60	20-25	NP-5
	2-21	Gravelly very fine sandy loam, loam	CL, CL-ML	A-4	0	0	70-100	65-100	55-95	50-60	25-30	5-10
	21-28	Gravelly sandy loam	SC-SM, GC-GM	A-2, A-4	0-5	0-10	75-95	70-90	55-90	50-75	20-25	NP-5
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
106: Rizno-----	0-3	Fine sandy loam	CL-ML, SM, ML, SC-SM	A-4	0	0-10	85-100	80-100	55-85	35-55	20-25	NP-5
	3-13	Fine sandy loam	CL-ML, SM, ML, SC-SM	A-4	0	0-10	85-100	80-100	55-85	35-55	20-25	NP-5
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Littlenan-----	0-3	Gravelly loam	SC, CL-ML, SC-SM	A-4	0-5	0-10	60-85	50-75	45-70	35-55	25-30	5-10
	3-29	Silty clay loam, silty clay, clay loam	CL	A-6, A-7	0-5	0-10	90-100	85-100	75-100	65-95	30-45	10-20
	29-39	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
106: Bodry-----	0-6	Very cobbly loam	GC-GM, SC, GC, SC-SM	A-2	0-10	40-70	50-70	45-65	20-45	15-35	25-30	5-10
	6-15	Clay loam, silty clay loam, sandy clay loam	CL	A-6, A-7	0-5	0-20	95-100	90-100	60-90	55-85	35-45	15-25
	15-36	Clay, silty clay, clay loam	CH, CL	A-7	0	0	100	100	70-100	65-90	40-65	20-40
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---
107: Rizno-----	0-3	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0-10	95-100	90-100	65-85	30-50	20-30	NP-10
	3-13	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0-10	95-100	90-100	65-85	30-50	20-30	NP-10
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Ruinpoint-----	0-2	Very fine sandy loam	CL-ML	A-4	0	0	100	100	70-100	50-65	25-30	5-10
	2-13	Silt loam	CL	A-6	0	0	100	100	95-100	80-95	30-35	10-15
	13-23	Silt loam	CL	A-6	0	0	100	100	95-100	80-95	30-35	10-15
	23-60	Silt loam	CL	A-6	0	0	100	100	95-100	80-95	30-35	10-15
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
108: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
109: Romberg-----	0-2	Very stony loam	CL, CL-ML, SC, GC	A-4	25-70	10-45	40-80	35-70	30-65	25-60	25-30	5-10
	2-20	Very stony clay loam	GC	A-2, A-6	25-70	25-50	50-70	45-65	40-60	30-60	30-35	10-15
	20-60	Very stony clay loam	GC	A-2, A-6	25-70	25-50	50-70	45-65	40-60	30-60	30-35	10-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
109: Crosscan-----	0-2	Very bouldery sandy clay loam	GC, SC-SM, GC-GM, SC	A-1, A-2	25-65	5-45	40-65	35-60	25-55	15-45	25-35	5-15
	2-18	Very gravelly sandy clay loam, very gravelly clay loam, very gravelly loam	GC	A-2, A-6	0-10	0-20	35-55	30-50	30-50	20-40	25-35	5-15
	18-28	Weathered bedrock			---	---	---	---	---	---	---	---
110: Romberg-----	0-2	Very stony loam	CL, SC, CL- ML, GC	A-4	25-70	10-45	40-80	35-70	30-65	25-60	25-30	5-10
	2-20	Very stony clay loam	GC	A-2, A-6	25-70	25-50	50-70	45-65	40-60	30-60	30-35	10-15
	20-60	Very stony clay loam	GC	A-2, A-6	25-70	25-50	50-70	45-65	40-60	30-60	30-35	10-15
Crosscan-----	0-2	Very bouldery sandy clay loam	GC-GM, GC, SC, SC-SM	A-1, A-2	25-65	5-45	40-65	35-60	25-55	15-45	25-35	5-15
	2-18	Very gravelly sandy clay loam, very gravelly clay loam, very gravelly loam	GC	A-2, A-6	0-10	0-20	35-55	30-50	30-50	20-40	25-35	5-15
	18-28	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
111: Roubideau-----	0-6	Loam	CL, CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	6-36	Silty clay loam, loam, clay loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-100	60-95	40-80	25-35	5-15
	36-38	Clay loam, channery loam, channery clay loam, loam	CL, SC-SM, CL-ML, SC	A-4	0-5	0-20	65-100	60-100	55-95	40-80	25-35	5-15
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
112: Sharps-----	0-9	Loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	60-75	25-30	5-10
	9-19	Clay loam, loam, silty clay loam	CL	A-6	0	0	85-100	85-100	60-95	50-85	25-35	10-20
	19-30	Loam, clay loam, silty clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	50-80	25-30	5-10
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---
113: Sharps-----	0-9	Loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	60-75	25-30	5-10
	9-19	Loam, clay loam, silty clay loam	CL	A-6	0	0	85-100	85-100	60-95	50-85	25-35	10-20
	19-30	Loam, clay loam, silty clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	50-80	25-30	5-10
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---
114: Sharps, dry-----	0-2	Loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	60-75	25-30	5-10
	2-12	Clay loam, loam	CL	A-6	0	0	85-100	85-100	60-95	50-80	25-35	5-15
	12-27	Loam, clay loam, silty clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	70-95	50-80	25-30	5-10
	27-32	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	65-75	30-35	5-15
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
115: Sharps, dry-----	0-2	Loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	60-75	25-30	5-10
	2-12	Clay loam, loam	CL	A-6	0	0	85-100	85-100	60-95	50-80	25-35	5-15
	12-27	Loam, clay loam, silty clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	70-95	50-80	25-30	5-10
	27-32	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	65-75	30-35	5-15
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---
Gapmesa-----	0-2	Very fine sandy loam	CL-ML, SM, ML, SC-SM	A-4	0	0	90-100	90-100	70-85	40-55	20-25	NP-5
	2-21	Gravelly very fine sandy loam, loam	CL, CL-ML	A-4	0	0	70-100	65-100	55-95	50-60	25-30	5-10
	21-28	Gravelly sandy loam	SC-SM, GC-GM	A-2, A-4	0-5	0-10	75-95	70-90	55-90	50-75	20-25	NP-5
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
116: Sharps-----	0-9	Loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	60-75	25-30	5-10
	9-19	Loam, clay loam, silty clay loam	CL	A-6	0	0	85-100	85-100	60-95	50-85	25-35	10-20
	19-30	Loam, clay loam, silty clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	50-80	25-30	5-10
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---
Cahona-----	0-5	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10
	5-25	Clay loam, loam	CL	A-6	0	0	95-100	95-100	90-100	60-80	25-35	5-15
	25-60	Loam	CL, CL-ML	A-4	0	0	95-100	95-100	85-95	60-75	25-30	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
117: Sharps-----	0-9	Loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	60-75	25-30	5-10
	9-19	Loam, clay loam, silty clay loam	CL	A-6	0	0	85-100	85-100	60-95	50-85	25-35	10-20
	19-30	Loam, clay loam, silty clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	50-80	25-30	5-10
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---
Pulpit-----	0-10	Loam	CL, CL-ML	A-4	0	0	90-100	90-100	85-95	60-75	25-30	5-10
	10-20	Loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	95-100	80-95	30-35	5-15
	20-36	Loam, fine sandy loam, clay loam	CL, CL-ML, ML	A-4	0	0	90-100	90-100	90-95	65-80	20-30	NP-10
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
118: Sharps-----	0-9	Loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	60-75	25-30	5-10
	9-19	Loam, clay loam, silty clay loam	CL	A-6	0	0	85-100	85-100	60-95	50-85	25-35	10-20
	19-30	Loam, clay loam, silty clay loam	CL, CL-ML	A-4	0	0	85-100	85-100	60-95	50-80	25-30	5-10
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---
118: Pulpit-----	0-10	Loam	CL, CL-ML	A-4	0	0	90-100	90-100	85-95	60-75	25-30	5-10
	10-20	Loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	95-100	95-100	80-95	30-35	5-15
	20-36	Loam, fine sandy loam, clay loam	CL, CL-ML, ML	A-4	0	0	90-100	90-100	90-95	65-80	20-30	NP-10
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
119: Sheek-----	0-1	Moderately decomposed plant material			---	---	---	---	---	---	---	---
	1-5	Very stony sandy loam	GC-GM, SC, GC, SC-SM	A-1, A-2	25-70	10-50	45-85	40-80	25-60	15-35	25-30	5-10
	5-60	Very stony clay loam, very stony sandy clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	25-70	10-70	45-85	40-80	35-75	30-70	25-35	5-15
Archuleta-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-6	Very stony sandy loam	GC, SC-SM, GC-GM, SC	A-1, A-2	25-70	5-50	45-90	40-85	25-60	15-35	25-30	5-10
	6-18	Stony sandy loam, stony sandy clay loam, stony clay loam	CL, SC-SM, CL-ML	A-4, A-6	10-40	5-20	75-90	70-85	65-85	50-70	25-35	5-15
	18-28	Weathered bedrock			---	---	---	---	---	---	---	---
120: Sheek-----	0-1	Moderately decomposed plant material			---	---	---	---	---	---	---	---
	1-5	Very stony sandy loam	GC, GC-GM, SC-SM, SC	A-1, A-2	25-70	10-50	45-85	40-80	25-60	15-35	25-30	5-10
	5-60	Very stony clay loam, very stony sandy clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	25-70	10-70	45-85	40-80	35-75	30-70	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
120: Archuleta-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-6	Very stony sandy loam	GC-GM, GC, SC, SC-SM	A-1, A-2	25-70	5-50	45-90	40-85	25-60	15-35	25-30	5-10
	6-18	Stony sandy loam, stony sandy clay loam, stony clay loam	CL-ML, CL, SC-SM	A-4, A-6	10-40	5-20	75-90	70-85	65-85	50-70	25-35	5-15
	18-28	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
121: Sheek-----	0-1	Moderately decomposed plant material			---	---	---	---	---	---	---	---
	1-5	Very stony sandy loam	GC, SC-SM, GC-GM, SC	A-1, A-2	25-70	10-50	45-85	40-80	25-60	15-35	25-30	5-10
	5-60	Very stony clay loam, very stony sandy clay loam, very cobbly loam	CL, SC, GC	A-2, A-6	25-70	10-70	45-85	40-80	35-75	30-70	25-35	5-15
Archuleta-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-6	Very stony sandy loam	GC, SC-SM, GC-GM, SC	A-1, A-2	25-70	5-50	45-90	40-85	25-60	15-35	25-30	5-10
	6-18	Stony sandy loam, stony sandy clay loam, stony clay loam	CL-ML, SC-SM, CL	A-4, A-6	10-40	5-20	75-90	70-85	65-85	50-70	25-35	5-15
	18-28	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
121: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
122: Sheppard-----	0-7	Fine sand	SM	A-2	0	0	100	100	65-80	20-35	---	NP
	7-60	Loamy fine sand, fine sand, loamy sand	SM	A-2	0	0	100	90-100	70-80	20-50	---	NP
123: Sideshow-----	0-3	Silty clay loam	CL, ML	A-6, A-7	0	0	95-100	95-100	95-100	85-95	35-45	10-20
	3-60	Silty clay loam, clay loam, clay	CL	A-6, A-7	0	0	90-100	90-100	90-100	75-95	35-50	15-25
124: Sideshow-----	0-3	Silty clay loam	CL, ML	A-6, A-7	0	0	95-100	95-100	95-100	85-95	35-45	10-20
	3-60	Silty clay loam, clay loam, clay	CL	A-6, A-7	0	0	90-100	90-100	90-100	75-95	35-50	15-25
125: Sideshow-----	0-3	Silty clay loam	CL, ML	A-6, A-7	0	0	95-100	95-100	95-100	85-95	35-45	10-20
	3-60	Silty clay loam, clay loam, clay	CL	A-6, A-7	0	0	90-100	90-100	90-100	75-95	35-50	15-25
126: Sideshow-----	0-3	Silty clay loam	CL, ML	A-6, A-7	0	0	95-100	95-100	95-100	85-95	35-45	10-20
	3-60	Silty clay loam, clay loam, clay	CL	A-6, A-7	0	0	90-100	90-100	90-100	75-95	35-50	15-25

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
126: Zigzag-----	0-1	Very channery clay loam	GC	A-2	0-5	0-10	35-45	30-40	30-40	20-30	30-40	10-20
	1-5	Clay loam			0-5	0-5	85-100	80-100	75-100	60-80	30-40	10-20
	5-19	Clay loam, clay	CL	A-7	0-5	0-5	90-100	85-100	75-100	70-95	40-60	15-35
	19-29	Weathered bedrock			---	---	---	---	---	---	---	---
127: Sideslide-----	0-3	Silty clay loam	ML	A-6, A-7	0	0-5	95-100	90-100	90-100	85-95	35-45	10-20
	3-40	Silty clay loam, clay loam	CL	A-6	0	0-5	95-100	90-100	90-100	80-90	30-35	10-15
	40-60	Clay, silty clay loam, clay loam			0	0-5	95-100	90-100	90-100	75-90	30-50	10-25
128: Stephouse-----	0-1	Gravelly fine sandy loam			0-5	0-5	60-80	55-75	40-65	25-40	20-25	NP-5
	1-12	Gravelly fine sandy loam, very gravelly fine sandy loam, loam			0-5	0-5	35-80	30-75	20-65	10-40	20-25	NP-5
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
129: Torriorthents---	0-4	Extremely stony sandy loam	GM, SC-SM, GC-GM, SM	A-2	30-80	35-70	45-90	40-85	25-55	5-30	20-25	NP-5
	4-14	Very stony silty clay loam	GM, ML, SM	A-4, A-6	25-65	10-50	45-85	40-80	40-80	35-75	30-45	5-15
	14-24	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
130: Torriorthents---	0-4	Silty clay loam	CL, ML	A-6, A-7	0	0	95-100	95-100	95-100	85-95	35-45	10-20
	4-14	Silty clay loam, clay loam, clay	CL	A-6, A-7	0	0	90-100	90-100	90-100	75-95	35-50	15-25
	14-24	Weathered bedrock			---	---	---	---	---	---	---	---
Badland-----	0-60	Weathered bedrock			---	---	---	---	---	---	---	---
131: Tragmon-----	0-5	Sandy loam	SC, SC-SM	A-2, A-4	0-5	0-10	85-100	80-100	50-70	25-40	25-30	5-10
	5-11	Loam	CL, CL-ML	A-4	0-5	0-15	85-100	75-100	70-95	50-75	25-30	5-10
	11-40	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0-5	0-15	85-100	75-100	70-95	50-75	25-35	5-15
	40-60	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4	0-5	0-15	85-100	75-100	70-95	50-75	25-30	5-10
Sheek-----	0-4	Cobbly loam	CL, CL-ML, SC-SM, SC	A-4	0-10	15-45	75-85	70-80	60-80	45-65	25-30	5-10
	4-16	Very cobbly clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	10-25	20-60	45-85	40-80	35-75	30-70	30-35	10-15
	16-42	Very gravelly clay loam, very stony clay loam, very cobbly clay loam	CL, SC, GC	A-2, A-6	10-40	20-50	45-90	40-85	35-80	30-70	30-35	10-15
	42-60	Very stony clay loam, very cobbly clay loam	GC, CL, SC	A-2, A-6	25-60	25-40	45-90	40-85	35-85	30-70	30-35	10-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
132: Typic Argiaquolls----	0-4	Loam	CL, CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	4-10	Silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	25-35	5-15
	10-24	Silty clay loam, clay loam	CL	A-6	0	0	100	100	90-100	70-95	30-35	5-20
	24-60	Silty clay loam, loam, sandy loam	CL, CL-ML	A-4	0	0	100	95-100	60-95	40-95	25-35	5-15
133: Typic Torriorthents--	0-3	Extremely stony sandy loam	GC-GM, SM, GM, SC-SM	A-2	30-85	35-70	45-90	40-85	25-55	15-30	20-25	NP-5
	3-16	Stony sandy loam, very stony silty clay loam, very stony clay loam	GM, ML, SM	A-6	15-70	10-50	40-85	35-80	35-80	30-75	30-45	5-15
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
134: Umbarg-----	0-2	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	75-90	60-70	25-30	5-10
	2-5	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	65-75	30-35	10-15
	5-12	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	65-75	30-35	10-15
	12-42	Loam	CL, CL-ML	A-4	0	0-5	90-100	85-100	75-90	60-70	25-30	5-10
	42-60	Very gravelly loam	GC, GC-GM	A-2	0-10	5-35	40-55	35-50	30-45	25-35	25-30	5-10
Winner-----	0-4	Clay loam	CL	A-6	0-5	0-5	90-100	85-100	80-95	65-75	30-35	10-15
	4-31	Clay loam	CL	A-6	0-5	0-5	90-100	85-100	80-95	65-75	30-35	10-15
	31-60	Very stony sandy clay loam	GC-GM, SC, GC, SC-SM	A-1, A-2	30-65	5-40	50-80	45-75	40-65	20-35	25-30	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
134: Tesajo-----	0-3	Gravelly sandy loam	SC-SM, GC-GM	A-1	0-5	5-10	60-65	55-60	35-45	20-30	25-30	5-30
	3-36	Stratified extremely cobbly loamy sand to very cobbly sandy loam	GC, SC	A-1	5-20	35-80	45-90	40-80	25-65	5-35	25-30	5-10
	36-60	Extremely cobbly sandy loam	GC-GM, SC-SM, GC, SC	A-1	5-20	40-80	30-80	20-75	10-50	5-30	25-30	5-10
135: Ustic Torrifluvents--	0-3	Loamy sand	SC-SM, SM	A-2	0	0	95-100	90-95	50-75	15-30	15-25	NP-5
	3-11	Fine sandy loam	CL-ML, SC-SM, ML	A-4	0	0	95-100	95-100	65-85	40-55	20-25	NP-5
	11-60	Stratified loamy sand to very gravelly sandy loam, very gravelly sandy loam	GP-GM, GW-GM, SM, GM, SC-SM	A-1, A-4, A-2	0	0-10	40-100	35-95	20-70	5-40	20-25	NP-5
136: Ustic Torriorthents--	0-7	Variable			0-5	0-20	---	---	---	---	---	---
	7-60	Clay loam, sandy clay loam, sandy loam	CL-ML, SC, CL, SC-SM	A-4, A-2, A-6	0-5	0-15	80-95	75-90	55-85	30-75	20-35	5-20
Gullied land----	0-60	Variable			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
137: Ustorthents-----	0-3	Very cobbly loam	GC-GM, SC-SM	A-2	0-25	20-70	45-90	40-85	35-80	25-65	25-30	5-10
	3-14	Very cobbly loam	GC-GM, SC-SM	A-2	0-25	20-70	45-90	40-85	35-80	25-65	25-30	5-10
	14-60	Extremely cobbly loam, very stony sandy loam, cobbly clay loam	GM, CL, ML, SM	A-2, A-6, A-4	0-65	0-80	20-80	15-75	10-75	5-60	25-45	5-15
138: Uzacol-----	0-5	Clay loam	CL	A-6	0-1	0-1	85-95	75-95	70-85	70-80	30-35	10-15
	5-45	Clay, clay loam	CH, CL	A-6, A-7	0-5	0-5	85-100	80-100	75-95	70-90	40-65	20-40
	45-59	Clay, clay loam	CL	A-6, A-7	0-5	0-5	85-100	80-100	75-100	70-95	35-60	15-35
	59-69	Weathered bedrock			---	---	---	---	---	---	---	---
Zwicker-----	0-1	Stony clay loam	CL	A-6	10-20	5-15	75-90	70-85	65-85	50-70	30-40	10-20
	1-4	Clay loam	CL	A-6	0-5	0-5	85-100	80-100	75-95	60-75	30-40	10-20
	4-32	Clay, clay loam	CL	A-6, A-7	0-5	0-5	85-100	80-100	75-95	60-90	35-50	15-25
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---
Claysprings----	0-3	Very stony clay loam	CL	A-6	25-50	5-15	80-95	70-85	65-85	50-65	30-35	10-15
	3-18	Clay, clay loam	CH, CL	A-7	0-5	0-5	85-100	85-100	80-100	70-95	40-60	15-30
	18-28	Weathered bedrock			---	---	---	---	---	---	---	---
139: Water-----	0-60	Water			---	---	---	---	---	---	---	---
140: Wauquie-----	0-2	Very stony loam	GC-GM, GC, SC, SC-SM	A-2, A-4	25-60	5-30	45-90	40-85	35-80	25-60	25-30	5-10
	2-20	Very stony sandy loam, very stony loam	GC-GM, CL, SC, SC-SM	A-2, A-1, A-4	25-70	5-50	45-90	40-85	25-80	15-65	25-30	5-10
	20-60	Very stony loam	GC-GM, SC, CL, SC-SM	A-2, A-4	25-70	5-40	45-90	40-85	35-80	25-65	25-35	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
141: Wauquie-----	0-2	Stony fine sandy loam	SC, SC-SM	A-2, A-4	10-45	5-30	75-90	70-85	50-70	30-45	25-30	5-10
	2-6	Very cobbly sandy loam, very cobbly loam	CL, GC-GM, SC-SM, SC	A-2, A-4	0-10	20-50	45-90	40-85	35-80	25-65	25-30	5-10
	6-22	Very cobbly loam, very cobbly clay loam			5-25	20-50	45-90	40-85	35-80	25-65	25-35	5-15
	22-60	Very stony clay loam, very cobbly loam	GC-GM, SC, CL, SC-SM	A-2, A-6, A-4	25-70	5-40	45-90	40-85	35-85	25-70	25-35	5-15
Dolcan-----	0-2	Extremely cobbly fine sandy loam	GM, SC-SM, GC-GM, SM	A-2, A-1, A- 3, A-4	0-30	30-85	20-80	15-75	10-65	5-40	20-25	NP-5
	2-11	Loam, clay loam, cobbly clay loam	CL	A-6	0-10	0-35	75-100	70-100	65-100	60-80	30-35	10-15
	11-21	Weathered bedrock			---	---	---	---	---	---	---	---
142: Wauquie-----	0-2	Stony fine sandy loam	SC, SC-SM	A-2, A-4	10-45	5-30	75-90	70-85	50-70	30-45	25-30	5-10
	2-6	Very cobbly sandy loam, very cobbly loam	GC-GM, CL, SC, SC-SM	A-2, A-4	0-10	20-50	45-90	40-85	35-80	25-65	25-30	5-10
	6-22	Very cobbly loam, very cobbly clay loam			5-25	20-50	45-90	40-85	35-80	25-65	25-35	5-15
	22-60	Very stony clay loam, very cobbly loam	CL, SC-SM, GC-GM, SC	A-4, A-2, A-6	25-70	5-40	45-90	40-85	35-85	25-70	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
142: Dolcan-----	0-2	Extremely cobbly fine sandy loam	GM, SC-SM, GC-GM, SM	A-1, A-4, A- 2, A-3	0-30	30-85	20-80	15-75	10-65	5-40	20-25	NP-5
	2-11	Loam, clay loam, cobbly clay loam	CL	A-6	0-10	0-35	75-100	70-100	65-100	60-80	30-35	10-15
	11-21	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
143: Wetherill-----	0-3	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	3-7	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	100	100	85-95	60-75	25-35	5-15
	7-48	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-80	25-35	5-15
	48-60	Sandy clay loam, loam	CL, CL-ML	A-4	0	0	100	100	85-100	65-75	25-30	5-10
144: Wetherill-----	0-3	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	3-7	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	100	100	85-95	60-75	25-35	5-15
	7-48	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-80	25-35	5-15
	48-60	Sandy clay loam, loam	CL, CL-ML	A-4	0	0	100	100	85-100	65-75	25-30	5-10
145: Wetherill-----	0-3	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	3-7	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	100	100	85-95	60-75	25-35	5-15
	7-48	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-80	25-35	5-15
	48-60	Sandy clay loam, loam	CL, CL-ML	A-4	0	0	100	100	85-100	65-75	25-30	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
146: Yarts-----	0-9	Clay loam	CL	A-6	0	0	95-100	90-100	85-100	65-75	30-35	10-15
	9-13	Sandy loam, fine sandy loam	ML, CL-ML, SC-SM, SM	A-2, A-4	0	0	95-100	90-100	55-90	30-55	20-25	NP-5
	13-60	Sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	90-100	55-70	30-40	20-30	NP-10
147: Yarts-----	0-9	Fine sandy loam	CL-ML, ML, SM, SC-SM	A-4	0	0	95-100	90-100	65-80	45-55	20-25	NP-5
	9-13	Sandy loam, fine sandy loam	ML, SC-SM, CL-ML, SM	A-2, A-4	0	0	95-100	90-100	55-90	30-55	20-25	NP-5
	13-60	Sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	90-100	55-70	30-40	20-30	NP-10
148: Zau-----	0-2	Moderately decomposed plant material			---	---	---	---	---	---	---	---
	2-10	Stony loam	CL, CL-ML	A-4	10-45	5-20	80-95	75-95	70-80	45-65	25-30	5-10
	10-29	Clay loam, clay	CL	A-6, A-7	0-5	0-5	85-95	80-95	70-90	60-90	35-45	15-20
	29-34	Clay loam, sandy clay loam	CL	A-6	0-5	0-10	85-95	80-90	65-85	45-70	30-40	10-20
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
149: Zigzag-----	0-1	Very channery clay loam	GC	A-2	0-5	0-10	35-45	30-40	30-40	20-30	30-40	10-20
	1-5	Clay loam			0-5	0-5	85-100	80-100	75-100	60-80	30-40	10-20
	5-19	Clay loam, clay	CL	A-7	0-5	0-5	90-100	85-100	75-100	70-95	40-60	15-35
	19-29	Weathered bedrock			---	---	---	---	---	---	---	---
150: Zigzag-----	0-1	Very channery clay loam	GC	A-2	0-5	0-10	35-45	30-40	30-40	20-30	30-40	10-20
	1-5	Clay loam			0-5	0-5	85-100	80-100	75-100	60-80	30-40	10-20
	5-19	Clay loam, clay	CL	A-7	0-5	0-5	90-100	85-100	75-100	70-95	40-60	15-35
	19-29	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct					Pct	
	In											
150: Sideshow-----	0-3	Silty clay loam	CL, ML	A-6, A-7	0	0	95-100	95-100	95-100	85-95	35-45	10-20
	3-60	Silty clay loam, clay loam, clay	CL	A-6, A-7	0	0	90-100	90-100	90-100	75-95	35-50	15-25
151: Zyme-----	0-2	Gravelly clay loam	GC, CL, SC	A-6	0-5	0-10	65-75	60-70	45-65	40-60	30-40	10-20
	2-12	Clay loam, clay	CL	A-6, A-7	0-5	0-5	90-100	85-100	75-100	70-95	35-45	15-20
	12-22	Weathered bedrock			---	---	---	---	---	---	---	---
152: Zyme-----	0-2	Very channery clay loam	GC	A-2	0-5	0-10	35-45	30-40	25-35	20-30	30-40	10-20
	2-12	Clay loam, clay	CL	A-6, A-7	0-5	0-5	90-100	85-100	75-100	70-95	35-45	15-20
	12-22	Weathered bedrock			---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
1: Ackmen-----	0-6	18-27	1.25-1.40	0.60-2.00	0.15-0.17	0.0-2.9	2.0-5.0	.20	.20	5	4L	86
	6-60	18-35	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.32	.32			
2: Ackmen-----	0-6	18-27	1.25-1.40	0.60-2.00	0.15-0.17	0.0-2.9	2.0-5.0	.20	.20	5	4L	86
	6-60	18-35	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.32	.32			
3: Arabrab-----	0-4	5-15	1.45-1.55	6.00-20.00	0.06-0.08	0.0-2.9	0.5-2.0	.20	.20	1	2	134
	4-13	18-35	1.25-1.40	0.60-2.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	13-16	18-35	1.30-1.40	0.60-2.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	16-26	---	---	0.00-0.20	---	---	---	---	---			
4: Arabrab-----	0-4	5-15	1.45-1.55	6.00-20.00	0.06-0.08	0.0-2.9	0.5-2.0	.20	.20	1	2	134
	4-13	18-35	1.25-1.40	0.60-2.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	13-16	18-35	1.30-1.40	0.60-2.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	16-26	---	---	0.00-0.20	---	---	---	---	---			
Longburn-----	0-1	10-20	1.35-1.50	0.20-2.00	0.09-0.11	0.0-2.9	1.0-2.0	.15	.28	1	3	86
	1-4	10-20	1.35-1.50	0.20-2.00	0.07-0.09	0.0-2.9	1.0-2.0	.10	.28			
	4-17	20-35	1.25-1.40	0.20-0.60	0.09-0.11	0.0-2.9	0.5-1.0	.10	.24			
	17-27	---	---	0.00-0.20	---	---	---	---	---			
5: Archuleta-----	0-1	---	---	---	---	---	---	---	---	2	6	48
	1-5	18-27	1.25-1.40	0.60-2.00	0.13-0.15	0.0-2.9	0.0-1.0	.37	.37			
	5-13	18-35	1.30-1.40	0.60-2.00	0.10-0.16	0.0-2.9	0.0-0.5	.24	.43			
	13-17	---	---	0.06-0.20	---	---	---	---	---			
Sanchez-----	0-5	20-27	1.30-1.40	0.60-2.00	0.07-0.09	0.0-2.9	2.0-3.0	.05	.17	1	8	0
	5-11	30-35	1.30-1.40	0.20-0.60	0.08-0.10	0.0-2.9	0.0-1.0	.10	.24			
	11-15	25-35	1.25-1.35	0.20-0.60	0.10-0.12	0.0-2.9	0.0-0.5	.15	.24			
	15-19	---	---	0.06-0.20	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
6: Argiustolls-----	0-1	---	---	---	---	---	---	---	---	3	8	0
	1-4	18-27	1.25-1.40	0.60-2.00	0.04-0.07	0.0-2.9	1.0-4.0	.05	.28			
	4-13	18-40	1.25-1.40	0.20-2.00	0.04-0.07	0.0-2.9	1.0-3.0	.02	.20			
	13-20	18-40	1.25-1.40	0.20-2.00	0.09-0.12	0.0-2.9	0.5-1.0	.10	.24			
	20-50	27-60	1.20-1.35	0.06-0.20	0.13-0.16	3.0-5.9	0.0-0.5	.15	.28			
	50-60	40-60	1.15-1.30	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.17	.17			
Haplustalfs-----	0-5	15-27	1.25-1.35	0.60-2.00	0.07-0.10	0.0-2.9	1.0-2.0	.15	.37	3	8	0
	5-10	18-35	1.25-1.35	0.20-0.60	0.09-0.11	0.0-2.9	0.5-1.0	.10	.24			
	10-41	27-50	1.20-1.40	0.06-0.60	0.07-0.11	3.0-5.9	0.5-1.0	.05	.17			
	41-60	27-50	1.15-1.25	0.06-0.20	0.07-0.12	3.0-5.9	0.0-0.5	.05	.17			
7: Argiustolls-----	0-1	---	---	---	---	---	---	---	---	3	8	0
	1-4	18-27	1.25-1.40	0.60-2.00	0.04-0.07	0.0-2.9	1.0-4.0	.05	.28			
	4-13	18-40	1.25-1.40	0.20-2.00	0.04-0.07	0.0-2.9	1.0-3.0	.02	.20			
	13-20	18-40	1.25-1.40	0.20-2.00	0.09-0.12	0.0-2.9	0.5-1.0	.10	.24			
	20-50	27-60	1.20-1.35	0.06-0.20	0.13-0.16	3.0-5.9	0.0-0.5	.15	.28			
	50-60	40-60	1.15-1.30	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.17	.17			
Haplustalfs-----	0-5	15-27	1.25-1.35	0.60-2.00	0.07-0.10	0.0-2.9	1.0-2.0	.15	.37	3	8	0
	5-10	18-35	1.25-1.35	0.20-0.60	0.09-0.11	0.0-2.9	0.5-1.0	.10	.24			
	10-41	27-50	1.20-1.40	0.06-0.60	0.07-0.11	3.0-5.9	0.5-1.0	.05	.17			
	41-60	27-50	1.15-1.25	0.06-0.20	0.07-0.12	3.0-5.9	0.0-0.5	.05	.17			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
8: Barx-----	0-3	10-20	1.25-1.40	2.00-6.00	0.14-0.18	0.0-2.9	1.0-2.0	.28	.28	5	4L	86
	3-31	18-35	1.25-1.40	0.60-2.00	0.14-0.18	3.0-5.9	0.0-1.0	.37	.37			
	31-60	18-30	1.40-1.50	0.60-2.00	0.14-0.18	0.0-2.9	0.0-0.5	.43	.43			
9: Barx-----	0-3	10-20	1.25-1.40	2.00-6.00	0.14-0.18	0.0-2.9	1.0-2.0	.28	.28	5	4L	86
	3-31	18-35	1.25-1.40	0.60-2.00	0.14-0.18	3.0-5.9	0.0-1.0	.37	.37			
	31-60	18-30	1.40-1.50	0.60-2.00	0.14-0.18	0.0-2.9	0.0-0.5	.43	.43			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
10: Barx-----	0-3	10-18	1.30-1.40	2.00-6.00	0.14-0.16	0.0-2.9	1.0-3.0	.43	.43	5	3	86
	3-9	10-18	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.0-1.0	.28	.28			
	9-23	27-35	1.30-1.40	0.60-2.00	0.17-0.18	3.0-5.9	0.0-1.0	.28	.28			
	23-36	27-35	1.40-1.50	0.60-2.00	0.17-0.18	3.0-5.9	0.0-1.0	.28	.28			
	36-55	20-27	1.40-1.50	0.60-2.00	0.17-0.18	0.0-2.9	0.0-1.0	.28	.28			
	55-60	20-27	1.40-1.50	0.60-2.00	0.17-0.18	0.0-2.9	0.0-1.0	.28	.28			
11: Barx-----	0-3	10-20	1.25-1.40	2.00-6.00	0.14-0.18	0.0-2.9	1.0-2.0	.28	.28	5	4L	86
	3-31	18-35	1.25-1.40	0.60-2.00	0.14-0.18	3.0-5.9	0.0-1.0	.37	.37			
	31-60	18-30	1.40-1.50	0.60-2.00	0.14-0.18	0.0-2.9	0.0-0.5	.43	.43			
Gapmesa-----	0-2	8-15	1.35-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24	2	3	86
	2-21	18-27	1.25-1.40	0.60-2.00	0.10-0.13	0.0-2.9	0.5-1.0	.24	.24			
	21-28	10-20	1.35-1.50	2.00-6.00	0.05-0.07	0.0-2.9	0.0-0.5	.20	.32			
	28-38	---	---	0.00-0.20	---	---	---	---	---			
12: Battlerock-----	0-10	27-35	1.25-1.35	0.20-0.60	0.17-0.20	3.0-5.9	0.5-1.0	.24	.24	5	4L	56
	10-60	18-35	1.25-1.40	0.20-0.60	0.15-0.18	3.0-5.9	0.5-1.0	.32	.32			
13: Beje-----	0-2	15-27	1.35-1.40	0.60-2.00	0.14-0.16	0.0-2.9	3.0-5.0	.20	.20	1	6	48
	2-14	18-27	1.35-1.40	0.60-2.00	0.14-0.16	0.0-2.9	1.0-2.0	.28	.28			
	14-24	---	---	0.00-0.20	---	---	---	---	---			
Tragmon-----	0-5	10-20	1.20-1.30	0.60-6.00	0.09-0.12	0.0-2.9	2.0-4.0	.20	.20	5	3	86
	5-11	18-27	1.25-1.40	0.60-2.00	0.14-0.16	0.0-2.9	2.0-4.0	.24	.24			
	11-40	18-35	1.25-1.40	0.60-2.00	0.14-0.16	0.0-2.9	1.0-2.0	.28	.28			
	40-60	18-35	1.30-1.40	0.60-2.00	0.12-0.14	0.0-2.9	0.5-1.0	.28	.28			
14: Burnson-----	0-1	---	---	---	---	---	---	---	---	3	6	48
	1-4	15-27	1.20-1.40	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24			
	4-8	27-45	1.20-1.40	0.06-0.60	0.17-0.20	3.0-5.9	1.0-3.0	.20	.20			
	8-44	30-55	1.25-1.40	0.06-0.20	0.14-0.19	6.0-8.9	0.5-1.0	.24	.24			
	44-54	---	---	0.00-0.06	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
15: Burnson, dry-----	0-1	---	---	---	---	---	---	---	---	3	6	48
	1-4	15-27	1.25-1.40	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24			
	4-8	27-45	1.20-1.40	0.06-0.60	0.17-0.20	3.0-5.9	1.0-3.0	.20	.20			
	8-44	30-55	1.25-1.40	0.06-0.20	0.14-0.19	6.0-8.9	0.5-1.0	.24	.24			
	44-54	---	---	0.00-0.06	---	---	---	---	---			
16: Burnson-----	0-1	---	---	---	---	---	---	---	---	3	6	48
	1-4	27-35	1.25-1.35	0.20-0.60	0.17-0.20	0.0-2.9	2.0-4.0	.24	.24			
	4-8	27-45	1.20-1.40	0.06-0.60	0.17-0.20	3.0-5.9	1.0-3.0	.20	.20			
	8-44	30-55	1.25-1.40	0.06-0.20	0.14-0.19	6.0-8.9	0.5-1.0	.24	.24			
	44-54	---	---	0.00-0.06	---	---	---	---	---			
Herm-----	0-6	15-25	1.25-1.30	0.60-6.00	0.13-0.16	0.0-2.9	2.0-3.0	.28	.28	5	5	56
	6-13	27-40	1.35-1.40	0.06-0.60	0.16-0.19	3.0-5.9	2.0-3.0	.28	.28			
	13-45	35-50	1.25-1.35	0.06-0.20	0.14-0.17	6.0-8.9	0.5-1.0	.24	.24			
	45-60	30-40	1.35-1.40	0.06-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.28	.28			
17: Cahona-----	0-5	10-20	1.25-1.40	0.60-2.00	0.14-0.16	0.0-2.9	0.5-2.0	.37	.37	4	5	56
	5-25	18-35	1.40-1.55	0.20-0.60	0.18-0.21	3.0-5.9	0.5-1.0	.28	.28			
	25-60	18-27	1.25-1.40	0.60-2.00	0.16-0.19	0.0-2.9	0.0-0.5	.43	.43			
18: Cahona-----	0-5	10-20	1.25-1.40	0.60-2.00	0.14-0.16	0.0-2.9	0.5-2.0	.37	.37	4	5	56
	5-25	18-35	1.40-1.55	0.20-0.60	0.18-0.21	3.0-5.9	0.5-1.0	.28	.28			
	25-60	18-27	1.25-1.40	0.60-2.00	0.16-0.19	0.0-2.9	0.0-0.5	.43	.43			
19: Cahona-----	0-5	10-20	1.25-1.40	0.60-2.00	0.14-0.16	0.0-2.9	0.5-2.0	.37	.37	4	5	56
	5-25	18-35	1.40-1.55	0.20-0.60	0.18-0.21	3.0-5.9	0.5-1.0	.28	.28			
	25-60	18-27	1.25-1.40	0.60-2.00	0.16-0.19	0.0-2.9	0.0-0.5	.43	.43			
20: Cahona-----	0-5	10-20	1.25-1.40	0.60-2.00	0.14-0.16	0.0-2.9	0.5-2.0	.37	.37	4	5	56
	5-25	18-35	1.40-1.55	0.20-0.60	0.18-0.21	3.0-5.9	0.5-1.0	.28	.28			
	25-60	18-27	1.25-1.40	0.60-2.00	0.16-0.19	0.0-2.9	0.0-0.5	.43	.43			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
20: Pulpit-----	0-10	10-27	1.25-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.5-2.0	.37	.37	2	5	56
	10-20	18-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	20-36	10-35	1.35-1.50	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.32	.32			
	36-46	---	---	0.00-0.20	---	---	---	---	---			
21: Cahona-----	0-5	10-20	1.25-1.40	0.60-2.00	0.14-0.16	0.0-2.9	0.5-2.0	.37	.37	4	5	56
	5-25	18-35	1.40-1.55	0.20-0.60	0.18-0.21	3.0-5.9	0.5-1.0	.28	.28			
	25-60	18-27	1.25-1.40	0.60-2.00	0.16-0.19	0.0-2.9	0.0-0.5	.43	.43			
Sharps-----	0-9	10-27	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	0.5-2.0	.37	.37	3	5	56
	9-19	18-35	1.25-1.35	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.32	.32			
	19-30	18-35	1.25-1.35	0.60-2.00	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	30-40	---	---	0.00-0.20	---	---	---	---	---			
Wetherill-----	0-3	10-27	1.25-1.40	0.60-2.00	0.15-0.18	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	3-7	18-35	1.25-1.50	0.20-0.60	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	7-48	18-35	1.40-1.55	0.20-0.60	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37			
	48-60	18-25	1.25-1.40	0.60-2.00	0.11-0.15	0.0-2.9	0.0-0.5	.37	.37			
22: Claysprings-----	0-3	27-35	1.25-1.40	0.20-0.60	0.10-0.12	0.0-2.9	0.0-0.5	.10	.28	2	8	0
	3-18	35-60	1.20-1.35	0.06-0.20	0.16-0.18	6.0-8.9	0.0-0.5	.28	.28			
	18-28	---	---	0.00-0.02	---	---	---	---	---			
23: Collide-----	0-10	27-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	2.0-4.0	.17	.17	5	6	48
	10-29	35-50	1.35-1.45	0.06-0.20	0.16-0.19	6.0-8.9	0.0-1.0	.24	.24			
	29-60	35-50	1.35-1.45	0.06-0.20	0.10-0.16	3.0-5.9	0.0-1.0	.24	.24			
24: Collide-----	0-10	27-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	2.0-4.0	.17	.17	5	6	48
	10-29	35-50	1.35-1.45	0.06-0.20	0.16-0.19	6.0-8.9	0.0-1.0	.24	.24			
	29-60	35-50	1.35-1.45	0.06-0.20	0.10-0.16	3.0-5.9	0.0-1.0	.24	.24			
25: Collide-----	0-10	27-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	2.0-4.0	.17	.17	5	6	48
	10-29	35-50	1.35-1.45	0.06-0.20	0.16-0.19	6.0-8.9	0.0-1.0	.24	.24			
	29-60	35-50	1.35-1.45	0.06-0.20	0.10-0.16	3.0-5.9	0.0-1.0	.24	.24			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
25:												
Collide, Cobbly	0-2	18-27	1.30-1.40	0.60-2.00	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	4	6	48
Substratum-----	2-8	27-40	1.15-1.30	0.20-0.60	0.18-0.21	3.0-5.9	1.0-2.0	.28	.28			
	8-45	35-50	1.15-1.30	0.06-0.20	0.15-0.18	6.0-8.9	0.5-1.0	.24	.24			
	45-60	20-35	1.25-1.35	0.60-2.00	0.04-0.06	0.0-2.9	0.0-0.5	.05	.24			
26:												
Collide-----	0-10	27-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	2.0-4.0	.17	.17	5	6	48
	10-29	35-50	1.35-1.45	0.06-0.20	0.16-0.19	6.0-8.9	0.0-1.0	.24	.24			
	29-60	35-50	1.35-1.45	0.06-0.20	0.10-0.16	3.0-5.9	0.0-1.0	.24	.24			
Collide, cobbly	0-2	18-27	1.30-1.40	0.60-2.00	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	4	6	48
Substratum-----	2-8	27-40	1.15-1.30	0.20-0.60	0.18-0.21	3.0-5.9	1.0-2.0	.28	.28			
	8-45	35-50	1.15-1.30	0.06-0.20	0.15-0.18	6.0-8.9	0.5-1.0	.24	.24			
	45-60	20-35	1.25-1.35	0.60-2.00	0.04-0.06	0.0-2.9	0.0-0.5	.05	.24			
27:												
Dalmatian-----	0-39	18-25	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	39-49	20-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.17	.17			
	49-60	5-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.5-3.0	.15	.24			
Apmay-----	0-4	15-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.37	.37	4	5	56
	4-18	27-35	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	2.0-3.0	.43	.43			
	18-22	10-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.28	.28			
	22-60	5-15	1.35-1.45	2.00-6.00	0.05-0.07	0.0-2.9	0.0-0.5	.05	.37			
Schrader-----	0-13	15-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24	5	8	0
	13-17	10-18	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	2.0-4.0	.20	.20			
	17-24	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	2.0-3.0	.17	.17			
	24-60	10-18	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
28:												
Dam-----	---	---	---	---	---	---	---	---	---	-	---	---
29:												
Endoaquolls-----	0-4	15-25	1.15-1.25	0.60-2.00	0.14-0.17	0.0-2.9	1.0-4.0	.28	.28	2	8	0
	4-28	15-25	1.25-1.35	0.60-6.00	0.10-0.13	0.0-2.9	0.5-3.0	.24	.24			
	28-60	0-10	1.50-1.60	6.00-20.00	0.02-0.03	0.0-2.9	0.0-0.5	.02	.20			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
29: Ustifluvents-----	0-6	10-27	1.25-1.35	0.60-2.00	0.14-0.18	0.0-2.9	1.0-3.0	.28	.28	3	6	48
	6-17	10-27	1.30-1.40	0.60-2.00	0.13-0.17	0.0-2.9	0.5-1.0	.32	.32			
	17-24	10-20	1.35-1.45	0.60-6.00	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32			
	24-30	10-27	1.30-1.40	0.60-2.00	0.13-0.17	0.0-2.9	0.5-1.0	.32	.32			
	30-60	0-5	1.55-1.65	20.00-20.00	0.01-0.03	0.0-2.9	0.0-0.5	.02	.20			
30: Falconry-----	0-1	---	---	---	---	---	---	---	---	1	3	86
	1-5	5-18	1.30-1.40	0.60-6.00	0.07-0.10	0.0-2.9	3.0-5.0	.10	.15			
	5-14	5-18	1.35-1.45	6.00-20.00	0.06-0.08	0.0-2.9	1.0-2.0	.15	.24			
	14-24	---	---	0.00-0.20	---	---	---	---	---			
31: Farb-----	0-3	5-18	1.45-1.55	2.00-6.00	0.08-0.13	0.0-2.9	0.0-1.0	.24	.24	1	3	86
	3-16	5-18	1.45-1.55	2.00-6.00	0.06-0.13	0.0-2.9	0.0-0.5	.24	.24			
	16-26	---	---	0.00-0.20	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
32: Fardraw-----	0-11	15-27	1.35-1.40	0.60-2.00	0.14-0.16	0.0-2.9	3.0-5.0	.20	.20	3	6	48
	11-15	35-45	1.40-1.55	0.20-0.60	0.08-0.11	3.0-5.9	1.0-2.0	.05	.20			
	15-51	35-50	1.40-1.55	0.06-0.20	0.07-0.09	3.0-5.9	0.5-1.0	.05	.17			
	51-60	35-45	1.40-1.55	0.06-0.20	0.07-0.09	3.0-5.9	0.0-0.5	.05	.17			
33: Fardraw-----	0-9	15-27	1.25-1.35	0.60-2.00	0.06-0.09	0.0-2.9	2.0-4.0	.10	.24	5	8	0
	9-13	27-35	1.25-1.35	0.20-0.60	0.09-0.11	0.0-2.9	1.0-2.0	.05	.20			
	13-60	35-50	1.15-1.30	0.06-0.20	0.07-0.10	3.0-5.9	0.5-1.0	.10	.24			
34: Fardraw-----	0-9	15-27	1.25-1.35	0.60-2.00	0.06-0.09	0.0-2.9	2.0-4.0	.10	.24	5	8	0
	9-13	27-35	1.25-1.35	0.20-0.60	0.09-0.11	0.0-2.9	1.0-2.0	.05	.20			
	13-60	35-50	1.15-1.30	0.06-0.20	0.07-0.10	3.0-5.9	0.5-1.0	.10	.24			
35: Fardraw-----	0-9	15-27	1.25-1.35	0.60-2.00	0.06-0.09	0.0-2.9	2.0-4.0	.10	.24	5	8	0
	9-13	27-35	1.25-1.35	0.20-0.60	0.09-0.11	0.0-2.9	1.0-2.0	.05	.20			
	13-60	35-50	1.15-1.30	0.06-0.20	0.07-0.10	3.0-5.9	0.5-1.0	.10	.24			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
35: Granath-----	0-1	---	---	---	---	---	---	---	---	5	6	48
	1-14	10-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24			
	14-60	20-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
36: Fivepine-----	0-3	15-27	1.30-1.40	0.60-2.00	0.13-0.17	0.0-2.9	1.0-3.0	.15	.28	1	6	48
	3-9	27-40	1.20-1.30	0.20-0.60	0.11-0.13	3.0-5.9	1.0-2.0	.15	.24			
	9-12	35-50	1.20-1.30	0.06-0.60	0.11-0.13	3.0-5.9	0.0-1.0	.15	.24			
	12-15	40-50	1.15-1.30	0.06-0.20	0.08-0.10	3.0-5.9	0.0-0.5	.10	.17			
	15-25	---	---	0.00-0.06	---	---	---	---	---			
Nortez-----	0-3	15-27	1.30-1.40	0.60-2.00	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	3-10	27-40	1.35-1.45	0.20-0.60	0.17-0.20	3.0-5.9	1.0-2.0	.20	.20			
	10-32	35-60	1.25-1.35	0.06-0.20	0.15-0.18	6.0-8.9	0.5-1.0	.24	.24			
	32-42	---	---	0.00-0.06	---	---	---	---	---			
37: Fluvaquents-----	0-8	5-40	1.20-1.60	0.20-6.00	0.06-0.18	3.0-5.9	0.5-1.0	.20	.24	3	3	86
	8-60	0-10	1.50-1.65	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28			
Haplustolls-----	0-4	10-25	1.15-1.25	0.60-2.00	0.10-0.12	0.0-2.9	1.0-3.0	.24	.24	4	3	86
	4-19	10-25	1.15-1.35	0.60-2.00	0.10-0.15	0.0-2.9	1.0-3.0	.24	.24			
	19-24	5-18	1.40-1.60	2.00-20.00	0.06-0.10	0.0-2.9	0.5-1.0	.05	.10			
	24-60	0-18	1.50-1.70	6.00-20.00	0.02-0.06	0.0-2.9	0.0-0.5	.05	.37			
38: Fluvents-----	0-6	---	---	0.20-20.00	---	---	0.5-3.0	---	---	5	8	0
	6-60	0-10	1.45-1.60	6.00-20.00	0.03-0.06	0.0-2.9	0.5-1.0	.05	.20			
Fluvaquents-----	0-8	5-40	1.20-1.60	0.20-6.00	0.06-0.18	3.0-5.9	0.5-1.0	.20	.24	3	3	86
	8-60	0-10	1.50-1.65	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28			
39: Fughes-----	0-7	15-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	7-26	35-40	1.15-1.25	0.06-0.20	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
	26-44	35-50	1.15-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.17	.17			
	44-60	35-60	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.17	.17			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
40:												
Fughes-----	0-8	15-27	1.30-1.40	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	8-26	35-40	1.25-1.35	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
	26-44	35-50	1.15-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.17	.17			
	44-60	35-60	1.25-1.35	0.06-0.20	0.10-0.16	3.0-5.9	0.0-0.5	.10	.17			
Herm-----	0-6	15-25	1.25-1.30	0.60-6.00	0.13-0.16	0.0-2.9	2.0-3.0	.28	.28	5	5	56
	6-13	27-40	1.35-1.40	0.06-0.60	0.16-0.19	3.0-5.9	2.0-3.0	.28	.28			
	13-45	35-50	1.25-1.35	0.06-0.20	0.14-0.17	6.0-8.9	0.5-1.0	.24	.24			
	45-60	30-40	1.35-1.40	0.06-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.28	.28			
41:												
Fughes-----	0-7	15-27	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	7-26	35-40	1.25-1.40	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.20	.20			
	26-34	35-50	1.15-1.40	0.06-0.20	0.16-0.19	3.0-5.9	0.5-1.0	.24	.24			
	34-44	35-50	1.15-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.17	.17			
	44-60	35-60	1.25-1.30	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.17	.17			
Sheek-----	0-2	27-35	1.25-1.35	0.20-0.60	0.12-0.13	0.0-2.9	1.0-2.0	.05	.20	5	8	0
	2-7	27-35	1.25-1.35	0.20-0.60	0.15-0.17	0.0-2.9	0.5-1.0	.15	.24			
	7-20	27-35	1.25-1.35	0.20-0.60	0.09-0.11	0.0-2.9	0.0-0.5	.10	.28			
	20-29	18-27	1.25-1.35	0.60-2.00	0.07-0.09	0.0-2.9	0.0-0.5	.15	.43			
	29-46	27-35	1.25-1.35	0.20-0.60	0.14-0.16	0.0-2.9	0.0-0.5	.15	.28			
	46-60	18-27	1.25-1.35	0.60-2.00	0.07-0.09	0.0-2.9	0.0-0.5	.15	.43			
42:												
Gladel-----	0-5	5-18	1.35-1.45	2.00-6.00	0.10-0.12	0.0-2.9	1.0-2.0	.15	.24	1	3	86
	5-10	5-18	1.40-1.50	2.00-6.00	0.08-0.10	0.0-2.9	0.0-0.5	.15	.24			
	10-15	5-18	1.40-1.50	2.00-6.00	0.09-0.12	0.0-2.9	0.5-1.0	.15	.24			
	15-25	---	---	0.00-0.20	---	---	---	---	---			
Pulpit-----	0-10	10-27	1.25-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.5-2.0	.37	.37	2	5	56
	10-20	18-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	20-36	10-35	1.35-1.50	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.32	.32			
	36-46	---	---	0.00-0.20	---	---	---	---	---			
43:												
Goldbug-----	0-1	---	---	---	---	---	---	---	---	5	8	0
	1-21	10-15	1.40-1.45	2.00-6.00	0.06-0.08	0.0-2.9	1.0-2.0	.10	.24			
	21-29	10-35	1.35-1.40	0.06-0.20	0.10-0.13	0.0-2.9	0.5-1.0	.15	.28			
	29-60	35-50	1.35-1.40	0.06-0.20	0.10-0.16	3.0-5.9	0.5-1.0	.10	.17			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
44:												
Granath-----	0-1	---	---	---	---	---	---	---	---	5	6	48
	1-14	10-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24			
	14-60	20-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
45:												
Granath-----	0-1	---	---	---	---	---	---	---	---	5	6	48
	1-14	10-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24			
	14-60	20-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
46:												
Granath-----	0-10	15-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	10-40	18-35	1.15-1.40	0.20-2.00	0.14-0.21	0.0-2.9	0.5-1.0	.24	.24			
	40-60	18-35	1.25-1.40	0.20-0.60	0.14-0.21	0.0-2.9	0.0-0.5	.28	.28			
Fughes-----	0-7	15-27	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	7-26	35-40	1.25-1.40	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.20	.20			
	26-34	35-50	1.15-1.40	0.06-0.20	0.16-0.19	3.0-5.9	0.5-1.0	.24	.24			
	34-44	35-50	1.15-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.17	.17			
	44-60	35-60	1.25-1.30	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.17	.17			
47:												
Granath-----	0-10	15-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	10-40	18-35	1.15-1.40	0.20-2.00	0.14-0.21	0.0-2.9	0.5-1.0	.24	.24			
	40-60	18-35	1.25-1.40	0.20-0.60	0.14-0.21	0.0-2.9	0.0-0.5	.28	.28			
Nortez-----	0-3	15-27	1.30-1.40	0.60-2.00	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	3-10	27-40	1.35-1.45	0.20-0.60	0.17-0.20	3.0-5.9	1.0-2.0	.20	.20			
	10-32	35-60	1.25-1.35	0.06-0.20	0.15-0.18	6.0-8.9	0.5-1.0	.24	.24			
	32-42	---	---	0.00-0.06	---	---	---	---	---			
48:												
Granath-----	0-10	15-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	10-40	18-35	1.15-1.40	0.20-2.00	0.14-0.21	0.0-2.9	0.5-1.0	.24	.24			
	40-60	18-35	1.25-1.40	0.20-0.60	0.14-0.21	0.0-2.9	0.0-0.5	.28	.28			
Ormiston-----	0-7	15-27	1.25-1.35	0.60-2.00	0.13-0.16	0.0-2.9	2.0-4.0	.24	.24	3	6	48
	7-32	35-60	1.35-1.40	0.06-0.20	0.07-0.11	3.0-5.9	0.0-1.0	.10	.28			
	32-44	27-40	1.30-1.40	0.20-0.60	0.13-0.16	3.0-5.9	0.0-0.5	.15	.28			
	44-54	---	---	0.00-0.06	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
48: Fivepine-----	0-3	15-27	1.30-1.40	0.60-2.00	0.13-0.17	0.0-2.9	1.0-3.0	.15	.28	1	6	48
	3-9	27-40	1.20-1.30	0.20-0.60	0.11-0.13	3.0-5.9	1.0-2.0	.15	.24			
	9-12	35-50	1.20-1.30	0.06-0.60	0.11-0.13	3.0-5.9	0.0-1.0	.15	.24			
	12-15	40-50	1.15-1.30	0.06-0.20	0.08-0.10	3.0-5.9	0.0-0.5	.10	.17			
	15-25	---	---	0.00-0.06	---	---	---	---	---			
49: Herm-----	0-7	15-25	1.25-1.30	0.60-6.00	0.13-0.16	0.0-2.9	2.0-3.0	.28	.28	5	5	56
	7-34	35-50	1.25-1.35	0.06-0.20	0.14-0.17	6.0-8.9	0.5-1.0	.24	.24			
	34-60	30-40	1.35-1.40	0.06-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.28	.28			
50: Herm-----	0-1	10-25	1.25-1.40	0.60-6.00	0.07-0.09	0.0-2.9	1.0-3.0	.10	.28	5	8	0
	1-10	10-25	1.25-1.40	0.60-6.00	0.10-0.13	0.0-2.9	1.0-2.0	.15	.28			
	10-60	30-40	1.40-1.55	0.06-0.60	0.17-0.21	3.0-5.9	0.5-1.0	.24	.24			
51: Herm-----	0-6	15-25	1.25-1.30	0.60-6.00	0.13-0.16	0.0-2.9	2.0-3.0	.28	.28	5	5	56
	6-13	27-40	1.25-1.40	0.06-0.60	0.16-0.19	3.0-5.9	2.0-3.0	.28	.28			
	13-45	35-50	1.25-1.35	0.06-0.20	0.14-0.17	6.0-8.9	0.5-1.0	.24	.24			
	45-60	30-40	1.35-1.40	0.06-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.28	.28			
Pagoda-----	0-1	---	---	---	---	---	---	---	---	5	6	48
	1-5	15-27	1.25-1.35	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.28	.28			
	5-21	35-50	1.30-1.50	0.06-0.20	0.19-0.21	6.0-8.9	0.5-2.0	.24	.24			
	21-60	27-50	1.25-1.45	0.06-0.60	0.19-0.21	6.0-8.9	0.5-1.0	.24	.24			
52: Hesperus-----	0-11	10-20	1.30-1.35	0.60-2.00	0.16-0.19	0.0-2.9	2.0-5.0	.20	.20	5	5	56
	11-44	20-35	1.30-1.40	0.20-2.00	0.16-0.19	0.0-2.9	1.0-3.0	.28	.28			
	44-60	15-35	1.30-1.40	0.60-2.00	0.16-0.19	0.0-2.9	0.0-0.5	.28	.28			
53: Hesperus-----	0-11	10-20	1.30-1.35	0.60-2.00	0.16-0.19	0.0-2.9	2.0-5.0	.20	.20	5	5	56
	11-44	20-35	1.30-1.40	0.20-2.00	0.16-0.19	0.0-2.9	1.0-3.0	.28	.28			
	44-60	15-35	1.30-1.40	0.60-2.00	0.16-0.19	0.0-2.9	0.0-0.5	.28	.28			
54: Hesperus-----	0-11	10-20	1.30-1.35	0.60-2.00	0.16-0.19	0.0-2.9	2.0-5.0	.20	.20	5	5	56
	11-44	20-35	1.30-1.40	0.20-2.00	0.16-0.19	0.0-2.9	1.0-3.0	.28	.28			
	44-60	15-35	1.30-1.40	0.60-2.00	0.16-0.19	0.0-2.9	0.0-0.5	.28	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
55: Hesperus-----	0-11	8-18	1.35-1.40	2.00-6.00	0.12-0.14	0.0-2.9	2.0-4.0	.20	.20	5	3	86
	11-44	20-35	1.30-1.40	0.20-2.00	0.16-0.19	0.0-2.9	1.0-3.0	.28	.28			
	44-60	15-35	1.30-1.40	0.60-2.00	0.16-0.19	0.0-2.9	0.0-0.5	.28	.28			
56: Ilex-----	0-2	18-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.28	.28	3	6	48
	2-22	35-50	1.25-1.40	0.06-0.20	0.19-0.21	6.0-8.9	0.5-1.0	.24	.24			
	22-37	15-50	1.15-1.40	0.06-0.20	0.14-0.18	6.0-8.9	0.0-0.5	.43	.43			
	37-60	20-50	1.15-1.40	0.06-0.20	0.14-0.18	3.0-5.9	0.0-0.5	.43	.43			
57: Ilex-----	0-2	18-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.28	.28	3	6	48
	2-22	35-50	1.25-1.40	0.06-0.20	0.19-0.21	6.0-8.9	0.5-1.0	.24	.24			
	22-37	15-50	1.15-1.40	0.06-0.20	0.14-0.18	6.0-8.9	0.0-0.5	.43	.43			
	37-60	20-50	1.15-1.40	0.06-0.20	0.14-0.18	3.0-5.9	0.0-0.5	.43	.43			
58: Ilex-----	0-2	18-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.28	.28	3	6	48
	2-22	35-50	1.25-1.40	0.06-0.20	0.19-0.21	6.0-8.9	0.5-1.0	.24	.24			
	22-37	15-50	1.15-1.40	0.06-0.20	0.14-0.18	6.0-8.9	0.0-0.5	.43	.43			
	37-60	20-50	1.15-1.40	0.06-0.20	0.14-0.18	3.0-5.9	0.0-0.5	.43	.43			
Granath-----	0-1	---	---	---	---	---	---	---	---	5	6	48
	1-14	10-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24			
	14-60	20-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
59: Ilex-----	0-2	18-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.28	.28	3	6	48
	2-22	35-50	1.25-1.40	0.06-0.20	0.19-0.21	6.0-8.9	0.5-1.0	.24	.24			
	22-37	15-50	1.15-1.40	0.06-0.20	0.14-0.18	6.0-8.9	0.0-0.5	.43	.43			
	37-60	20-50	1.15-1.40	0.06-0.20	0.14-0.18	3.0-5.9	0.0-0.5	.43	.43			
Granath-----	0-1	---	---	---	---	---	---	---	---	5	6	48
	1-14	10-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24			
	14-60	20-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
60: Ilex-----	0-2	18-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.28	.28	3	6	48
	2-22	35-50	1.25-1.40	0.06-0.20	0.19-0.21	6.0-8.9	0.5-1.0	.24	.24			
	22-37	15-50	1.15-1.40	0.06-0.20	0.14-0.18	6.0-8.9	0.0-0.5	.43	.43			
	37-60	20-50	1.15-1.40	0.06-0.20	0.14-0.18	3.0-5.9	0.0-0.5	.43	.43			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
60:												
Pramiss-----	0-3	10-27	1.30-1.40	0.60-2.00	0.07-0.09	0.0-2.9	2.0-5.0	.05	.20	3	8	0
	3-16	35-60	1.35-1.45	0.06-0.20	0.16-0.18	6.0-8.9	1.0-2.0	.20	.20			
	16-31	35-60	1.35-1.45	0.06-0.20	0.16-0.18	6.0-8.9	0.0-0.5	.20	.20			
	31-41	---	---	0.00-0.20	---	---	---	---	---			
Falconry-----	0-1	---	---	---	---	---	---	---	---	1	3	86
	1-5	5-18	1.30-1.40	0.60-6.00	0.07-0.10	0.0-2.9	3.0-5.0	.10	.15			
	5-14	5-18	1.35-1.45	6.00-20.00	0.06-0.08	0.0-2.9	1.0-2.0	.15	.24			
	14-24	---	---	0.00-0.20	---	---	---	---	---			
61:												
Ilex-----	0-2	18-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.28	.28	3	6	48
	2-22	35-50	1.25-1.40	0.06-0.20	0.19-0.21	6.0-8.9	0.5-1.0	.24	.24			
	22-37	15-50	1.15-1.40	0.06-0.20	0.14-0.18	6.0-8.9	0.0-0.5	.43	.43			
	37-60	20-50	1.15-1.40	0.06-0.20	0.14-0.18	3.0-5.9	0.0-0.5	.43	.43			
Pramiss-----	0-3	18-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.28	.28	3	5	56
	3-16	35-60	1.35-1.45	0.06-0.20	0.16-0.18	6.0-8.9	1.0-2.0	.20	.20			
	16-31	35-60	1.35-1.45	0.06-0.20	0.16-0.18	6.0-8.9	0.0-0.5	.20	.20			
	31-41	---	---	0.00-0.20	---	---	---	---	---			
Granath-----	0-1	---	---	---	---	---	---	---	---	5	6	48
	1-14	10-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24			
	14-60	20-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
62:												
Irak-----	0-8	10-27	1.35-1.45	0.60-2.00	0.14-0.17	0.0-2.9	2.0-4.0	.24	.24	5	4L	86
	8-60	18-35	1.30-1.45	0.60-2.00	0.15-0.18	3.0-5.9	0.5-3.0	.28	.28			
63:												
Jemco-----	0-7	15-27	1.20-1.30	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.37	.37	2	6	48
	7-22	15-27	1.20-1.30	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.43	.43			
	22-39	27-35	1.25-1.35	0.20-0.60	0.17-0.19	0.0-2.9	0.0-0.5	.28	.28			
	39-49	---	---	0.00-0.06	---	---	---	---	---			
Detra-----	0-16	15-27	1.35-1.40	0.60-2.00	0.14-0.18	0.0-2.9	3.0-5.0	.20	.20	3	6	48
	16-43	18-35	1.30-1.40	0.20-2.00	0.14-0.20	0.0-2.9	2.0-4.0	.24	.24			
	43-57	27-35	1.25-1.35	0.20-0.60	0.16-0.19	3.0-5.9	0.5-1.0	.24	.24			
	57-67	---	---	0.00-0.06	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
63: Beje-----	0-2	15-27	1.35-1.40	0.60-2.00	0.14-0.16	0.0-2.9	3.0-5.0	.20	.20	1	6	48
	2-6	18-27	1.35-1.40	0.60-2.00	0.14-0.16	0.0-2.9	1.0-2.0	.28	.28			
	6-14	18-35	1.25-1.35	0.20-2.00	0.14-0.20	0.0-2.9	0.5-1.0	.32	.32			
	14-24	---	---	0.00-0.06	---	---	---	---	---			
64: Lazear-----	0-5	15-20	1.35-1.40	0.60-2.00	0.06-0.08	0.0-2.9	0.5-1.0	.15	.37	1	8	0
	5-15	20-32	1.40-1.45	0.60-2.00	0.08-0.15	0.0-2.9	0.0-0.5	.24	.43			
	15-19	---	---	0.06-0.20	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
65: Lillings-----	0-2	18-27	1.25-1.30	0.60-2.00	0.14-0.18	0.0-2.9	0.5-1.0	.43	.43	5	4L	86
	2-60	18-35	1.25-1.30	0.20-2.00	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
66: Lillings-----	0-2	27-35	1.15-1.30	0.20-0.60	0.16-0.19	0.0-2.9	0.5-1.0	.32	.32	5	7	38
	2-60	18-35	1.25-1.30	0.20-2.00	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
67: Lillings-----	0-2	27-35	1.15-1.30	0.20-0.60	0.16-0.19	0.0-2.9	0.5-1.0	.32	.32	5	7	38
	2-60	18-35	1.25-1.30	0.20-2.00	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
68: Longburn-----	0-1	10-20	1.35-1.50	0.20-2.00	0.09-0.11	0.0-2.9	1.0-2.0	.15	.28	1	3	86
	1-4	10-20	1.35-1.50	0.20-2.00	0.07-0.09	0.0-2.9	1.0-2.0	.10	.28			
	4-17	20-35	1.25-1.40	0.20-0.60	0.09-0.11	0.0-2.9	0.5-1.0	.10	.24			
	17-27	---	---	0.00-0.20	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
69: Longburn-----	0-1	10-20	1.35-1.50	0.20-2.00	0.09-0.11	0.0-2.9	1.0-2.0	.15	.28	1	3	86
	1-4	10-20	1.35-1.50	0.20-2.00	0.07-0.09	0.0-2.9	1.0-2.0	.10	.28			
	4-17	20-35	1.25-1.40	0.20-0.60	0.09-0.11	0.0-2.9	0.5-1.0	.10	.24			
	17-27	---	---	0.00-0.20	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
70: Mack-----	0-13	15-20	1.40-1.50	0.60-2.00	0.13-0.18	0.0-2.9	0.5-1.0	.28	.28	2	3	86
	13-33	20-35	1.40-1.50	0.60-2.00	0.14-0.18	0.0-2.9	0.0-1.0	.24	.24			
	33-60	10-25	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	0.0-0.5	.28	.28			
71: Mikett-----	0-8	27-35	1.30-1.40	0.20-0.60	0.15-0.17	0.0-2.9	0.5-1.0	.24	.24	5	4L	86
	8-60	18-35	1.35-1.45	0.20-0.60	0.09-0.15	0.0-2.9	0.5-1.0	.28	.28			
72: Mikett-----	0-8	27-35	1.30-1.40	0.20-0.60	0.15-0.17	0.0-2.9	0.5-1.0	.24	.24	5	4L	86
	8-60	27-35	1.30-1.40	0.20-0.60	0.15-0.17	0.0-2.9	0.0-0.5	.28	.28			
73: Mikim-----	0-3	27-35	1.25-1.35	0.20-0.60	0.17-0.20	0.0-2.9	0.5-2.0	.24	.24	5	4L	86
	3-15	27-35	1.25-1.35	0.20-0.60	0.17-0.20	0.0-2.9	0.5-1.0	.28	.28			
	15-32	10-35	1.25-1.40	0.20-0.60	0.14-0.17	0.0-2.9	0.5-1.0	.32	.32			
	32-60	27-35	1.25-1.35	0.20-0.60	0.17-0.20	0.0-2.9	0.5-1.0	.28	.28			
74: Mikim-----	0-3	27-35	1.25-1.35	0.20-0.60	0.14-0.16	0.0-2.9	0.5-1.0	.24	.24	5	4L	86
	3-15	27-35	1.25-1.35	0.20-0.60	0.14-0.16	0.0-2.9	0.5-1.0	.24	.24			
	15-32	18-35	1.25-1.40	0.20-0.60	0.12-0.15	0.0-2.9	0.0-0.5	.28	.28			
	32-60	27-35	1.25-1.35	0.20-0.60	0.12-0.15	0.0-2.9	0.0-0.5	.28	.28			
75: Mikim-----	0-3	18-27	1.25-1.40	0.60-2.00	0.14-0.18	0.0-2.9	0.5-2.0	.37	.37	5	4L	86
	3-15	27-35	1.25-1.35	0.20-0.60	0.17-0.20	0.0-2.9	0.0-1.0	.28	.28			
	15-32	10-35	1.25-1.40	0.20-0.60	0.14-0.17	0.0-2.9	0.0-1.0	.32	.32			
	32-60	27-35	1.25-1.35	0.20-0.60	0.17-0.20	0.0-2.9	0.0-1.0	.28	.28			
76: Morefield-----	0-2	10-20	1.20-1.30	2.00-6.00	0.15-0.17	0.0-2.9	1.0-3.0	.28	.28	5	5	56
	2-24	18-35	1.40-1.55	0.20-0.60	0.17-0.20	3.0-5.9	0.5-2.0	.24	.24			
	24-60	18-35	1.40-1.55	0.20-0.60	0.16-0.20	3.0-5.9	0.0-0.5	.28	.28			
77: Morefield-----	0-2	10-20	1.20-1.30	2.00-6.00	0.15-0.17	0.0-2.9	1.0-3.0	.28	.28	5	5	56
	2-24	18-35	1.40-1.55	0.20-0.60	0.17-0.20	3.0-5.9	0.5-2.0	.24	.24			
	24-60	18-35	1.40-1.55	0.20-0.60	0.16-0.20	3.0-5.9	0.0-0.5	.28	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
78:												
Nortez-----	0-2	15-27	1.30-1.40	0.60-2.00	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	2-6	27-40	1.35-1.45	0.20-0.60	0.17-0.20	3.0-5.9	1.0-2.0	.20	.20			
	6-31	35-60	1.25-1.35	0.06-0.20	0.15-0.18	6.0-8.9	0.5-1.0	.24	.24			
	31-41	---	---	0.00-0.20	---	---	---	---	---			
Granath-----	0-1	---	---	---	---	---	---	---	---	5	6	48
	1-14	10-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24			
	14-60	20-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
79:												
Northrim-----	0-2	---	---	---	---	---	---	---	---	5	5	56
	2-9	10-27	1.15-1.25	0.60-6.00	0.10-0.13	0.0-2.9	1.0-3.0	.15	.28			
	9-22	20-35	1.25-1.40	0.20-2.00	0.13-0.16	0.0-2.9	0.5-1.0	.17	.28			
	22-60	20-35	1.20-1.40	0.20-2.00	0.13-0.16	0.0-2.9	0.5-1.0	.15	.24			
80:												
Ormiston-----	0-7	15-27	1.25-1.35	0.60-2.00	0.13-0.16	0.0-2.9	2.0-4.0	.24	.24	3	6	48
	7-32	35-60	1.35-1.40	0.06-0.20	0.07-0.11	3.0-5.9	0.0-1.0	.10	.28			
	32-44	27-40	1.30-1.40	0.20-0.60	0.13-0.16	3.0-5.9	0.0-0.5	.15	.28			
	44-54	---	---	0.00-0.06	---	---	---	---	---			
Beje-----	0-2	15-27	1.35-1.40	0.60-2.00	0.14-0.16	0.0-2.9	3.0-5.0	.20	.20	1	6	48
	2-6	18-27	1.35-1.40	0.60-2.00	0.14-0.16	0.0-2.9	1.0-2.0	.28	.28			
	6-14	18-35	1.25-1.35	0.20-2.00	0.14-0.20	0.0-2.9	0.5-1.0	.32	.32			
	14-24	---	---	0.00-0.06	---	---	---	---	---			
81:												
Ormiston-----	0-7	15-27	1.25-1.35	0.60-2.00	0.13-0.16	0.0-2.9	2.0-4.0	.24	.24	3	6	48
	7-32	35-60	1.35-1.40	0.06-0.20	0.07-0.11	3.0-5.9	0.0-1.0	.10	.28			
	32-44	27-40	1.30-1.40	0.20-0.60	0.13-0.16	3.0-5.9	0.0-0.5	.15	.28			
	44-54	---	---	0.00-0.06	---	---	---	---	---			
Fivepine-----	0-3	15-27	1.30-1.40	0.60-2.00	0.13-0.17	0.0-2.9	1.0-3.0	.15	.28	1	6	48
	3-9	27-40	1.20-1.30	0.20-0.60	0.11-0.13	3.0-5.9	1.0-2.0	.15	.24			
	9-12	35-50	1.20-1.30	0.06-0.60	0.11-0.13	3.0-5.9	0.0-1.0	.15	.24			
	12-15	40-50	1.15-1.30	0.06-0.20	0.08-0.10	3.0-5.9	0.0-0.5	.10	.17			
	15-25	---	---	0.00-0.06	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
82:												
Ormiston-----	0-3	15-27	1.35-1.40	0.60-6.00	0.04-0.05	0.0-2.9	1.0-3.0	.05	.28	3	8	0
	3-7	27-35	1.35-1.40	0.20-0.60	0.09-0.11	0.0-2.9	0.0-0.5	.10	.24			
	7-32	35-60	1.35-1.40	0.06-0.20	0.07-0.11	3.0-5.9	0.0-0.5	.10	.28			
	32-44	27-40	1.30-1.40	0.20-0.60	0.13-0.16	3.0-5.9	0.0-0.5	.15	.28			
	44-54	---	---	0.00-0.06	---	---	---	---	---			
Granath-----	0-1	---	---	---	---	---	---	---	---	5	6	48
	1-14	10-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24			
	14-60	20-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
83:												
Ormiston-----	0-3	15-27	1.35-1.40	0.60-6.00	0.04-0.05	0.0-2.9	1.0-3.0	.05	.28	3	8	0
	3-7	27-35	1.35-1.40	0.20-0.60	0.09-0.11	0.0-2.9	0.0-0.5	.10	.24			
	7-32	35-60	1.35-1.40	0.06-0.20	0.07-0.11	3.0-5.9	0.0-0.5	.10	.28			
	32-44	27-40	1.30-1.40	0.20-0.60	0.13-0.16	3.0-5.9	0.0-0.5	.15	.28			
	44-54	---	---	0.00-0.06	---	---	---	---	---			
Nortez-----	0-2	15-27	1.30-1.40	0.60-2.00	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	2	6	48
	2-6	27-40	1.35-1.45	0.20-0.60	0.17-0.20	3.0-5.9	1.0-2.0	.20	.20			
	6-31	35-60	1.25-1.35	0.06-0.20	0.15-0.18	6.0-8.9	0.5-1.0	.24	.24			
	31-41	---	---	0.00-0.20	---	---	---	---	---			
84:												
Payter-----	0-11	5-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	2.0-4.0	.20	.20	5	3	86
	11-39	10-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	2.0-3.0	.24	.24			
	39-60	10-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.28	.28			
85:												
Pinacol-----	0-7	10-27	1.15-1.25	0.60-2.00	0.14-0.21	0.0-2.9	2.0-3.0	.28	.28	4	5	56
	7-21	35-50	1.30-1.40	0.06-0.60	0.12-0.18	6.0-8.9	0.5-1.0	.15	.24			
	21-38	35-60	1.35-1.40	0.06-0.20	0.06-0.10	3.0-5.9	0.0-0.5	.10	.28			
	38-60	20-40	1.40-1.50	0.20-0.60	0.04-0.06	0.0-2.9	0.0-0.5	.05	.24			
86:												
Pinacol-----	0-7	10-27	1.15-1.25	0.60-2.00	0.14-0.21	0.0-2.9	2.0-3.0	.28	.28	4	5	56
	7-21	35-50	1.30-1.40	0.06-0.60	0.12-0.18	6.0-8.9	0.5-1.0	.15	.24			
	21-38	35-60	1.35-1.40	0.06-0.20	0.06-0.10	3.0-5.9	0.0-0.5	.10	.28			
	38-60	20-40	1.40-1.50	0.20-0.60	0.04-0.06	0.0-2.9	0.0-0.5	.05	.24			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
87: Pits-----	0-60	---	---	---	---	---	---	---	---	-	8	0
88: Pogo-----	0-2	15-27	1.25-1.35	0.60-2.00	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	5	8	0
	2-60	5-45	1.30-1.60	0.20-0.60	0.10-0.20	0.0-2.9	1.0-3.0	.15	.15			
89: Pramiss-----	0-3	10-27	1.30-1.40	0.60-2.00	0.07-0.09	0.0-2.9	2.0-5.0	.05	.20	3	8	0
	3-16	35-60	1.35-1.45	0.06-0.20	0.16-0.18	6.0-8.9	1.0-2.0	.20	.20			
	16-31	35-60	1.35-1.45	0.06-0.20	0.16-0.18	6.0-8.9	0.0-0.5	.20	.20			
	31-41	---	---	0.00-0.20	---	---	---	---	---			
90: Pramiss-----	0-3	10-27	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	2.0-5.0	.05	.20	3	5	56
	3-16	35-60	1.35-1.45	0.06-0.20	0.16-0.18	6.0-8.9	1.0-2.0	.20	.20			
	16-31	35-60	1.35-1.45	0.06-0.20	0.16-0.18	6.0-8.9	0.0-0.5	.20	.20			
	31-41	---	---	0.00-0.20	---	---	---	---	---			
Granath-----	0-1	---	---	---	---	---	---	---	---	5	6	48
	1-14	10-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.24	.24			
	14-60	20-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.24	.24			
91: Prater-----	0-1	10-27	1.25-1.40	0.60-2.00	0.10-0.13	0.0-2.9	2.0-4.0	.15	.24	5	2	134
	1-3	20-35	1.25-1.40	0.20-0.60	0.10-0.16	0.0-2.9	2.0-4.0	.15	.24			
	3-9	27-45	1.15-1.40	0.20-0.60	0.10-0.16	3.0-5.9	1.0-2.0	.10	.20			
	9-21	35-45	1.15-1.40	0.20-0.60	0.10-0.16	3.0-5.9	1.0-2.0	.10	.20			
	21-60	35-45	1.15-1.40	0.06-0.20	0.10-0.16	3.0-5.9	0.5-1.0	.15	.24			
92: Prater-----	0-1	10-27	1.25-1.40	0.60-2.00	0.13-0.16	0.0-2.9	2.0-4.0	.24	.24	5	2	134
	1-3	20-35	1.25-1.40	0.20-0.60	0.10-0.16	0.0-2.9	2.0-4.0	.15	.24			
	3-9	27-45	1.15-1.40	0.20-0.60	0.10-0.16	3.0-5.9	1.0-2.0	.10	.20			
	9-21	35-45	1.15-1.40	0.20-0.60	0.10-0.16	3.0-5.9	1.0-2.0	.10	.20			
	21-60	35-45	1.15-1.40	0.06-0.20	0.10-0.16	3.0-5.9	0.5-1.0	.15	.24			
Dolcan-----	0-2	8-20	1.25-1.35	0.60-2.00	0.03-0.07	0.0-2.9	1.0-2.0	.05	.28	2	8	0
	2-11	20-35	1.25-1.40	0.20-0.60	0.16-0.19	0.0-2.9	0.0-1.0	.15	.24			
	11-21	---	---	0.00-0.20	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
93: Pulpit-----	0-5	10-25	1.20-1.30	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.37	.37	2	5	56
	5-21	27-35	1.30-1.40	0.20-0.60	0.17-0.19	0.0-2.9	0.0-0.5	.37	.37			
	21-35	10-30	1.35-1.45	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.32	.32			
	35-39	---	---	0.06-0.20	---	---	---	---	---			
94: Pulpit-----	0-10	10-27	1.25-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.5-2.0	.37	.37	2	5	56
	10-20	18-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	20-36	10-35	1.35-1.50	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.32	.32			
	36-46	---	---	0.00-0.20	---	---	---	---	---			
95: Pulpit-----	0-10	10-27	1.25-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.5-2.0	.37	.37	2	5	56
	10-20	18-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	20-36	10-35	1.35-1.50	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.32	.32			
	36-46	---	---	0.00-0.20	---	---	---	---	---			
96: Purcella-----	0-4	10-27	1.25-1.35	0.60-2.00	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	3	5	56
	4-11	18-27	1.25-1.40	0.60-2.00	0.12-0.15	0.0-2.9	1.0-3.0	.15	.28			
	11-41	20-35	1.25-1.40	0.60-2.00	0.05-0.08	0.0-2.9	0.0-1.0	.05	.24			
	41-60	8-25	1.35-1.45	2.00-6.00	0.03-0.05	0.0-2.9	0.0-1.0	.05	.28			
97: Ramper-----	0-3	27-35	1.25-1.35	0.20-0.60	0.17-0.20	0.0-2.9	0.5-2.0	.24	.24	5	4L	86
	3-60	18-35	1.25-1.40	0.20-0.60	0.14-0.17	0.0-2.9	0.5-1.0	.28	.28			
98: Ramper-----	0-3	15-27	1.30-1.40	0.60-2.00	0.15-0.18	0.0-2.9	0.5-2.0	.37	.37	5	4L	86
	3-60	18-35	1.25-1.40	0.20-0.60	0.14-0.17	0.0-2.9	0.5-1.0	.28	.28			
99: Ravola-----	0-9	27-35	1.25-1.35	0.20-0.60	0.05-0.08	0.0-2.9	0.5-1.0	.24	.24	5	4L	86
	9-60	10-35	1.25-1.40	0.20-0.60	0.05-0.15	0.0-2.9	0.0-0.5	.24	.24			
100: Recapture-----	0-7	8-20	1.25-1.40	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	7-26	20-30	1.30-1.50	0.60-2.00	0.15-0.17	0.0-2.9	0.0-0.5	.37	.37			
	26-60	10-25	1.30-1.50	0.60-2.00	0.10-0.12	0.0-2.9	0.0-0.5	.43	.43			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
101: Recapture-----	0-6	10-20	1.45-1.55	2.00-6.00	0.08-0.10	0.0-2.9	0.5-1.0	.15	.15	3	3	86
	6-13	27-35	1.40-1.50	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.24	.24			
	13-17	10-20	1.45-1.55	2.00-6.00	0.08-0.10	0.0-2.9	0.0-0.5	.15	.15			
	17-38	20-35	1.45-1.55	0.20-0.60	0.12-0.14	3.0-5.9	0.0-0.5	.20	.20			
	38-60	10-20	1.50-1.60	2.00-6.00	0.07-0.09	0.0-2.9	0.0-0.5	.15	.15			
102: Ricot-----	0-12	15-27	1.30-1.40	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	12-16	20-35	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.28	.28			
	16-34	35-50	1.20-1.30	0.06-0.20	0.12-0.15	3.0-5.9	0.0-1.0	.28	.28			
	34-60	35-50	1.35-1.45	0.06-0.20	0.10-0.14	3.0-5.9	0.0-0.5	.15	.28			
103: Ricot-----	0-12	15-27	1.30-1.40	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	12-16	20-35	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.28	.28			
	16-34	35-50	1.20-1.30	0.06-0.20	0.12-0.15	3.0-5.9	0.0-1.0	.28	.28			
	34-60	35-50	1.35-1.45	0.06-0.20	0.10-0.14	3.0-5.9	0.0-0.5	.15	.28			
104: Ricot-----	0-12	15-27	1.30-1.40	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	12-16	20-35	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.28	.28			
	16-34	35-50	1.20-1.30	0.06-0.20	0.12-0.15	3.0-5.9	0.0-1.0	.28	.28			
	34-60	35-50	1.35-1.45	0.06-0.20	0.10-0.14	3.0-5.9	0.0-0.5	.15	.28			
105: Rizno-----	0-5	15-20	1.15-1.30	1.98-5.95	0.13-0.16	0.0-2.9	1.0-2.0	.43	.43	1	3	86
	5-13	10-18	1.20-1.40	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.28	.28			
	13-23	---	---	0.00-0.20	---	---	---	---	---			
Gapmesa-----	0-2	8-15	1.35-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24	2	3	86
	2-21	18-27	1.25-1.40	0.60-2.00	0.10-0.13	0.0-2.9	0.5-1.0	.24	.24			
	21-28	10-20	1.35-1.50	2.00-6.00	0.05-0.07	0.0-2.9	0.0-0.5	.20	.32			
	28-38	---	---	0.00-0.20	---	---	---	---	---			
106: Rizno-----	0-3	10-17	1.20-1.40	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.28	.28	1	3	86
	3-13	10-17	1.20-1.40	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.28	.28			
	13-23	---	---	0.00-0.20	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
106:												
Littlenan-----	0-3	20-27	1.20-1.35	0.06-0.60	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37	3	4L	86
	3-29	35-45	1.15-1.30	0.06-0.20	0.16-0.18	3.0-5.9	0.0-0.5	.28	.28			
	29-39	---	---	0.00-0.02	---	---	---	---	---			
Bodry-----	0-6	20-27	1.15-1.35	0.20-2.00	0.08-0.12	0.0-2.9	1.0-2.0	.10	.28	3	8	0
	6-15	30-40	1.20-1.40	0.06-0.60	0.16-0.18	6.0-8.9	0.5-1.0	.32	.32			
	15-36	35-60	1.20-1.40	0.06-0.20	0.17-0.20	6.0-8.9	0.0-0.5	.28	.28			
	36-46	---	---	0.00-0.20	---	---	---	---	---			
107:												
Rizno-----	0-3	3-18	1.30-1.55	2.00-6.00	0.10-0.12	0.0-2.9	0.5-1.0	.28	.32	1	3	86
	3-13	5-18	1.30-1.55	2.00-6.00	0.10-0.12	0.0-2.9	0.0-1.0	.28	.32			
	13-23	---	---	0.06-0.20	---	---	---	---	---			
Ruinpoint-----	0-2	15-20	1.15-1.30	2.00-6.00	0.13-0.16	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	2-13	20-27	1.10-1.25	0.60-2.00	0.16-0.18	3.0-5.9	0.0-1.0	.43	.43			
	13-23	20-27	1.10-1.25	0.60-2.00	0.16-0.18	3.0-5.9	0.0-1.0	.43	.43			
	23-60	20-27	1.10-1.25	0.60-2.00	0.16-0.18	3.0-5.9	0.0-1.0	.43	.43			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
108:												
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
109:												
Romberg-----	0-2	15-27	1.25-1.35	0.60-2.00	0.06-0.09	0.0-2.9	1.0-2.0	.10	.28	5	8	0
	2-20	27-35	1.25-1.35	0.20-0.60	0.07-0.08	0.0-2.9	0.5-1.0	.10	.24			
	20-60	18-35	1.35-1.45	0.20-0.60	0.07-0.08	0.0-2.9	0.0-0.5	.10	.24			
Crosscan-----	0-2	20-35	1.25-1.40	0.60-2.00	0.06-0.09	0.0-2.9	1.0-2.0	.05	.17	2	8	0
	2-18	18-35	1.25-1.40	0.06-0.20	0.07-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-28	---	---	0.00-0.20	---	---	---	---	---			
110:												
Romberg-----	0-2	15-27	1.25-1.35	0.60-2.00	0.06-0.09	0.0-2.9	1.0-2.0	.10	.28	5	8	0
	2-20	27-35	1.25-1.35	0.20-0.60	0.07-0.08	0.0-2.9	0.5-1.0	.10	.24			
	20-60	18-35	1.35-1.45	0.20-0.60	0.07-0.08	0.0-2.9	0.0-0.5	.10	.24			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
110:												
Crosscan-----	0-2	20-35	1.25-1.40	0.60-2.00	0.06-0.09	0.0-2.9	1.0-2.0	.05	.17	2	8	0
	2-18	18-35	1.25-1.40	0.06-0.20	0.07-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-28	---	---	0.00-0.20	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
111:												
Roubideau-----	0-6	10-27	1.30-1.40	0.60-2.00	0.14-0.18	0.0-2.9	1.0-2.0	.28	.28	2	5	56
	6-36	18-35	1.25-1.40	0.20-0.60	0.13-0.19	3.0-5.9	0.5-1.0	.37	.37			
	36-38	18-35	1.25-1.40	0.60-2.00	0.13-0.15	0.0-2.9	0.0-0.5	.20	.37			
	38-48	---	---	0.00-0.20	---	---	---	---	---			
112:												
Sharps-----	0-9	10-27	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	0.5-2.0	.37	.37	3	5	56
	9-19	18-35	1.25-1.35	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.32	.32			
	19-30	18-35	1.25-1.35	0.60-2.00	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	30-40	---	---	0.00-0.20	---	---	---	---	---			
113:												
Sharps-----	0-9	10-27	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	0.5-2.0	.37	.37	3	5	56
	9-19	18-35	1.25-1.35	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.32	.32			
	19-30	18-35	1.25-1.35	0.60-2.00	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	30-40	---	---	0.00-0.20	---	---	---	---	---			
114:												
Sharps, dry-----	0-2	10-20	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	1.0-2.0	.28	.28	3	5	56
	2-12	18-35	1.25-1.35	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.32	.32			
	12-27	18-35	1.25-1.35	0.60-2.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
	27-32	27-35	1.35-1.45	0.20-0.60	0.13-0.15	3.0-5.9	0.0-1.0	.20	.20			
	32-42	---	---	0.00-0.20	---	---	---	---	---			
115:												
Sharps, dry-----	0-2	10-20	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	1.0-2.0	.28	.28	3	5	56
	2-12	18-35	1.25-1.35	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.32	.32			
	12-27	18-35	1.25-1.35	0.60-2.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
	27-32	27-35	1.35-1.45	0.20-0.60	0.13-0.15	3.0-5.9	0.0-1.0	.20	.20			
	32-42	---	---	0.00-0.20	---	---	---	---	---			
Gapmesa-----	0-2	8-15	1.35-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24	2	3	86
	2-21	18-27	1.25-1.40	0.60-2.00	0.10-0.13	0.0-2.9	0.5-1.0	.24	.24			
	21-28	10-20	1.35-1.50	2.00-6.00	0.05-0.07	0.0-2.9	0.0-0.5	.20	.32			
	28-38	---	---	0.00-0.20	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility	Wind erodi- bility
								Kw	Kf	T	group	index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
116: Sharps-----	0-9	10-27	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	0.5-2.0	.37	.37	3	5	56
	9-19	18-35	1.25-1.35	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.32	.32			
	19-30	18-35	1.25-1.35	0.60-2.00	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	30-40	---	---	0.00-0.20	---	---	---	---	---			
Cahona-----	0-5	10-20	1.25-1.40	0.60-2.00	0.14-0.16	0.0-2.9	0.5-2.0	.37	.37	4	5	56
	5-25	18-35	1.40-1.55	0.20-0.60	0.18-0.21	3.0-5.9	0.5-1.0	.28	.28			
	25-60	18-27	1.25-1.40	0.60-2.00	0.16-0.19	0.0-2.9	0.0-0.5	.43	.43			
117: Sharps-----	0-9	10-27	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	0.5-2.0	.37	.37	3	4L	86
	9-19	18-35	1.25-1.35	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.32	.32			
	19-30	18-35	1.25-1.35	0.60-2.00	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	30-40	---	---	0.00-0.20	---	---	---	---	---			
Pulpit-----	0-10	10-27	1.25-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.5-2.0	.37	.37	2	5	56
	10-20	18-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	20-36	10-35	1.35-1.50	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.32	.32			
	36-46	---	---	0.00-0.20	---	---	---	---	---			
118: Sharps-----	0-9	10-27	1.30-1.40	0.60-2.00	0.13-0.16	0.0-2.9	0.5-2.0	.37	.37	3	4L	86
	9-19	18-35	1.25-1.35	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.32	.32			
	19-30	18-35	1.25-1.35	0.60-2.00	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	30-40	---	---	0.00-0.20	---	---	---	---	---			
Pulpit-----	0-10	10-27	1.25-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.5-2.0	.37	.37	2	5	56
	10-20	18-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	20-36	10-35	1.35-1.50	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.32	.32			
	36-46	---	---	0.00-0.20	---	---	---	---	---			
119: Sheek-----	0-1	---	---	---	---	---	---	---	---	5	8	0
	1-5	10-20	1.40-1.50	2.00-6.00	0.05-0.07	0.0-2.9	2.0-4.0	.05	.20			
	5-60	18-35	1.35-1.45	0.20-0.60	0.09-0.11	0.0-2.9	1.0-2.0	.15	.28			
Archuleta-----	0-1	---	---	---	---	---	---	---	---	2	8	0
	1-6	10-20	1.40-1.50	2.00-6.00	0.05-0.07	0.0-2.9	1.0-3.0	.10	.24			
	6-18	18-35	1.25-1.40	0.20-0.60	0.13-0.16	0.0-2.9	0.5-1.0	.15	.28			
	18-28	---	---	0.00-0.20	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
120:												
Sheek-----	0-1	---	---	---	---	---	---	---	---	5	8	0
	1-5	10-20	1.40-1.50	2.00-6.00	0.05-0.07	0.0-2.9	2.0-4.0	.05	.20			
	5-60	18-35	1.35-1.45	0.20-0.60	0.09-0.11	0.0-2.9	1.0-2.0	.15	.28			
Archuleta-----	0-1	---	---	---	---	---	---	---	---	2	8	0
	1-6	10-20	1.40-1.50	2.00-6.00	0.05-0.07	0.0-2.9	1.0-3.0	.10	.24			
	6-18	18-35	1.25-1.40	0.20-0.60	0.13-0.16	0.0-2.9	0.5-1.0	.15	.28			
	18-28	---	---	0.00-0.20	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
121:												
Sheek-----	0-1	---	---	---	---	---	---	---	---	5	8	0
	1-5	10-20	1.40-1.50	2.00-6.00	0.05-0.07	0.0-2.9	2.0-4.0	.05	.20			
	5-60	18-35	1.35-1.45	0.20-0.60	0.09-0.11	0.0-2.9	1.0-2.0	.15	.28			
Archuleta-----	0-1	---	---	---	---	---	---	---	---	2	8	0
	1-6	10-20	1.40-1.50	2.00-6.00	0.05-0.07	0.0-2.9	1.0-3.0	.10	.24			
	6-18	18-35	1.25-1.40	0.20-0.60	0.13-0.16	0.0-2.9	0.5-1.0	.15	.28			
	18-28	---	---	0.00-0.20	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
122:												
Sheppard-----	0-7	3-10	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	0.0-0.5	.24	.24	5	1	250
	7-60	3-10	1.50-1.60	6.00-20.00	0.06-0.08	0.0-2.9	0.0-0.5	.28	.28			
123:												
Sideshow-----	0-3	27-40	1.15-1.30	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	3-60	35-60	1.20-1.40	0.06-0.20	0.16-0.21	6.0-8.9	0.0-1.0	.24	.24			
124:												
Sideshow-----	0-3	27-40	1.15-1.30	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	3-60	35-60	1.20-1.40	0.06-0.20	0.16-0.21	6.0-8.9	0.0-1.0	.24	.24			
125:												
Sideshow-----	0-3	27-40	1.15-1.30	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	3-60	35-60	1.20-1.40	0.06-0.20	0.16-0.21	6.0-8.9	0.0-1.0	.24	.24			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
126:												
Sideshow-----	0-3	27-40	1.15-1.30	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	3-60	35-60	1.20-1.40	0.06-0.20	0.16-0.21	6.0-8.9	0.0-1.0	.24	.24			
Zigzag-----	0-1	27-40	1.30-1.35	0.20-0.60	0.08-0.10	0.0-2.9	0.0-1.0	.10	.24	2	8	0
	1-5	27-40	1.30-1.40	0.06-0.60	0.16-0.19	3.0-5.9	0.0-1.0	.24	.24			
	5-19	35-55	1.30-1.40	0.06-0.20	0.15-0.19	6.0-8.9	0.0-0.5	.28	.28			
	19-29	---	---	0.00-0.20	---	---	---	---	---			
127:												
Sideslide-----	0-3	27-40	1.15-1.25	0.20-0.60	0.17-0.20	3.0-5.9	3.0-5.0	.20	.20	5	4L	86
	3-40	27-35	1.15-1.25	0.20-0.60	0.17-0.21	3.0-5.9	1.0-3.0	.20	.20			
	40-60	27-50	1.15-1.40	0.06-0.60	0.14-0.21	6.0-8.9	0.0-1.0	.20	.20			
128:												
Stephouse-----	0-1	8-18	1.35-1.50	0.60-6.00	0.09-0.11	0.0-2.9	0.5-1.0	.15	.28	1	3	86
	1-12	8-18	1.25-1.50	2.00-6.00	0.07-0.09	0.0-2.9	0.0-0.5	.15	.37			
	12-22	---	---	0.00-0.06	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
129:												
Torriorthents-----	0-4	10-20	1.35-1.45	2.00-6.00	0.04-0.06	0.0-2.9	0.5-1.0	.05	.28	3	8	0
	4-14	27-35	1.15-1.25	0.20-0.60	0.07-0.08	0.0-2.9	0.0-0.5	.15	.37			
	14-24	---	---	0.00-2.00	---	---	---	---	---			
130:												
Torriorthents-----	0-4	27-40	1.15-1.30	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.28	.28	3	8	0
	4-14	27-60	1.20-1.40	0.06-0.20	0.16-0.21	6.0-8.9	0.0-1.0	.24	.24			
	14-24	---	---	0.00-2.00	---	---	---	---	---			
Badland-----	0-60	---	---	0.00-0.03	---	---	---	---	---	-	8	0
131:												
Tragmon-----	0-5	10-20	1.20-1.30	0.60-6.00	0.09-0.12	0.0-2.9	2.0-4.0	.20	.20	5	3	86
	5-11	18-27	1.25-1.40	0.60-2.00	0.14-0.16	0.0-2.9	2.0-4.0	.24	.24			
	11-40	18-35	1.25-1.40	0.60-2.00	0.14-0.16	0.0-2.9	1.0-2.0	.28	.28			
	40-60	18-35	1.30-1.40	0.60-2.00	0.12-0.14	0.0-2.9	0.5-1.0	.28	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
131: Sheek-----	0-4	10-25	1.25-1.40	0.60-6.00	0.10-0.13	0.0-2.9	2.0-4.0	.15	.24	5	5	56
	4-16	27-35	1.35-1.45	0.20-0.60	0.09-0.11	0.0-2.9	1.0-2.0	.05	.20			
	16-42	27-35	1.25-1.40	0.20-0.60	0.09-0.11	0.0-2.9	1.0-2.0	.05	.20			
	42-60	27-35	1.25-1.40	0.20-0.60	0.10-0.11	0.0-2.9	0.5-1.0	.10	.24			
132: Typic Argiaquolls-----	0-4	15-27	1.25-1.40	0.60-6.00	0.14-0.18	0.0-2.9	2.0-5.0	.20	.20	5	6	48
	4-10	20-35	1.15-1.40	0.20-2.00	0.14-0.21	3.0-5.9	2.0-5.0	.20	.20			
	10-24	27-35	1.15-1.40	0.06-0.60	0.17-0.21	3.0-5.9	2.0-4.0	.24	.24			
	24-60	15-35	1.40-1.55	0.06-6.00	0.14-0.18	0.0-2.9	1.0-2.0	.28	.28			
133: Typic Torriorthents-----	0-3	10-20	1.35-1.45	2.00-6.00	0.04-0.06	0.0-2.9	0.5-1.0	.05	.28	3	8	0
	3-16	10-35	1.15-1.25	0.20-0.60	0.07-0.09	0.0-2.9	0.0-0.5	.15	.37			
	16-26	---	---	0.00-2.00	---	0.0-5.9	---	---	---			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
134: Umbarg-----	0-2	15-27	1.30-1.40	0.60-2.00	0.15-0.18	0.0-2.9	2.0-5.0	.20	.20	4	4L	86
	2-5	27-35	1.25-1.35	0.20-0.60	0.17-0.20	0.0-2.9	2.0-5.0	.15	.15			
	5-12	27-35	1.25-1.35	0.20-0.60	0.17-0.20	0.0-2.9	2.0-5.0	.15	.15			
	12-42	18-27	1.30-1.40	0.60-2.00	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28			
	42-60	15-27	1.30-1.40	0.60-2.00	0.08-0.11	0.0-2.9	1.0-3.0	.10	.28			
Winner-----	0-4	27-35	1.15-1.25	0.20-0.60	0.18-0.20	0.0-2.9	2.0-4.0	.17	.17	4	8	0
	4-31	27-35	1.15-1.25	0.20-0.60	0.18-0.20	0.0-2.9	2.0-4.0	.17	.17			
	31-60	20-35	1.25-1.35	0.60-2.00	0.07-0.10	0.0-2.9	0.5-2.0	.05	.20			
Tesajo-----	0-3	10-18	1.40-1.50	2.00-6.00	0.08-0.11	0.0-2.9	2.0-4.0	.10	.20	5	3	86
	3-36	10-18	1.45-1.55	6.00-20.00	0.04-0.06	0.0-2.9	1.0-3.0	.05	.20			
	36-60	10-18	1.40-1.50	2.00-6.00	0.04-0.06	0.0-2.9	1.0-3.0	.05	.24			
135: Ustic Torrifluvents-----	0-3	0-15	1.50-1.60	6.00-20.00	0.05-0.06	0.0-2.9	0.0-0.5	.24	.24	3	2	134
	3-11	0-20	1.50-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.32	.32			
	11-60	0-20	1.45-1.55	2.00-6.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
136:												
Ustic Torriorthents-----	0-7	18-35	1.25-1.40	0.20-6.00	0.10-0.20	0.0-5.9	0.5-1.0	.32	.32	3	4L	86
	7-60	18-35	1.25-1.40	0.20-2.00	0.06-0.18	3.0-5.9	0.0-0.5	.28	.28			
Gullied land-----	0-60	---	---	---	---	---	---	---	---	-	8	0
137:												
Ustorthents-----	0-3	8-20	1.25-1.45	0.60-6.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.37	3	8	0
	3-14	8-20	1.25-1.45	0.60-6.00	0.07-0.09	0.0-2.9	0.0-0.5	.15	.37			
	14-60	8-35	1.15-1.25	0.20-0.60	0.07-0.11	0.0-2.9	0.0-0.5	.32	.37			
138:												
Uzacol-----	0-5	27-35	1.35-1.40	0.20-0.60	0.17-0.21	3.0-5.9	1.0-2.0	.20	.20	2	4L	48
	5-45	35-60	1.30-1.40	0.06-0.20	0.15-0.17	6.0-8.9	0.0-0.5	.24	.24			
	45-59	35-55	1.35-1.40	0.06-0.20	0.15-0.19	6.0-8.9	0.0-0.5	.28	.28			
	59-69	---	---	0.06-0.20	---	---	---	---	---			
Zwicker-----	0-1	27-40	1.30-1.40	0.20-0.60	0.13-0.16	3.0-5.9	1.0-2.0	.10	.20	3	4L	86
	1-4	27-40	1.30-1.40	0.20-0.60	0.16-0.20	3.0-5.9	0.5-1.0	.24	.24			
	4-32	35-60	1.35-1.40	0.06-0.20	0.14-0.19	6.0-8.9	0.0-0.5	.20	.20			
	32-42	---	---	0.00-0.20	---	---	---	---	---			
Claysprings-----	0-3	27-35	1.25-1.40	0.20-0.60	0.10-0.12	0.0-2.9	0.0-0.5	.10	.28	2	8	0
	3-18	35-60	1.20-1.35	0.06-0.20	0.16-0.18	6.0-8.9	0.0-0.5	.28	.28			
	18-28	---	---	0.00-0.02	---	---	---	---	---			
139:												
Water-----	0-60	---	---	---	---	---	---	---	---	-	---	---
140:												
Wauquie-----	0-2	15-27	1.25-1.35	2.00-6.00	0.07-0.09	0.0-2.9	1.0-2.0	.10	.28	5	8	0
	2-20	15-27	1.30-1.45	0.60-2.00	0.05-0.09	0.0-2.9	0.5-1.0	.10	.28			
	20-60	20-27	1.25-1.40	0.60-2.00	0.07-0.09	0.0-2.9	0.0-0.5	.15	.43			
141:												
Wauquie-----	0-2	10-20	1.35-1.50	2.00-6.00	0.10-0.11	0.0-2.9	1.0-2.0	.15	.24	5	3	86
	2-6	15-27	1.30-1.40	0.60-2.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.37			
	6-22	18-35	1.30-1.40	0.60-2.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.24			
	22-60	20-35	1.25-1.40	0.60-2.00	0.07-0.11	0.0-2.9	0.0-1.0	.15	.24			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility	Wind erodi- bility
								Kw	Kf	T	group	index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
141: Dolcan-----	0-2	8-20	1.25-1.35	0.60-2.00	0.03-0.07	0.0-2.9	1.0-2.0	.05	.28	2	8	0
	2-11	20-35	1.25-1.40	0.20-0.60	0.16-0.19	0.0-2.9	0.0-1.0	.15	.24			
	11-21	---	---	0.00-0.02	---	---	---	---	---			
142: Wauquie-----	0-2	10-20	1.35-1.50	2.00-6.00	0.10-0.11	0.0-2.9	1.0-2.0	.15	.24	5	3	86
	2-6	15-27	1.30-1.40	0.60-2.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.37			
	6-22	18-35	1.30-1.40	0.60-2.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.24			
	22-60	20-35	1.25-1.40	0.60-2.00	0.07-0.11	0.0-2.9	0.0-1.0	.15	.24			
Dolcan-----	0-2	8-20	1.25-1.35	0.60-2.00	0.03-0.07	0.0-2.9	1.0-2.0	.05	.28	2	8	0
	2-11	20-35	1.25-1.40	0.20-0.60	0.16-0.19	0.0-2.9	0.0-1.0	.15	.24			
	11-21	---	---	0.00-0.02	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0.00-0.01	---	---	---	---	---	-	8	0
143: Wetherill-----	0-3	10-27	1.25-1.40	0.60-2.00	0.15-0.18	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	3-7	18-35	1.25-1.50	0.20-0.60	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	7-48	18-35	1.40-1.55	0.20-0.60	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37			
	48-60	18-25	1.25-1.40	0.60-2.00	0.11-0.15	0.0-2.9	0.0-0.5	.37	.37			
144: Wetherill-----	0-3	10-27	1.25-1.40	0.60-2.00	0.15-0.18	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	3-7	18-35	1.25-1.50	0.20-0.60	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	7-48	18-35	1.40-1.55	0.20-0.60	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37			
	48-60	18-25	1.25-1.40	0.60-2.00	0.11-0.15	0.0-2.9	0.0-0.5	.37	.37			
145: Wetherill-----	0-3	10-27	1.25-1.40	0.60-2.00	0.15-0.18	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	3-7	18-35	1.25-1.50	0.20-0.60	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	7-48	18-35	1.40-1.55	0.20-0.60	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37			
	48-60	18-25	1.25-1.40	0.60-2.00	0.11-0.15	0.0-2.9	0.0-0.5	.37	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
146: Yarts-----	0-9	27-35	1.25-1.35	0.20-0.60	0.18-0.20	0.0-2.9	0.5-1.0	.24	.24	5	4L	86
	9-13	8-18	1.35-1.45	2.00-6.00	0.11-0.14	0.0-2.9	0.5-1.0	.28	.28			
	13-60	8-18	1.35-1.45	2.00-6.00	0.11-0.12	0.0-2.9	0.5-1.0	.28	.28			
147: Yarts-----	0-9	8-18	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	9-13	8-18	1.35-1.45	2.00-6.00	0.11-0.14	0.0-2.9	0.5-1.0	.28	.28			
	13-60	8-18	1.35-1.45	2.00-6.00	0.11-0.12	0.0-2.9	0.5-1.0	.28	.28			
148: Zau-----	0-2	---	---	---	---	---	---	---	---	3	6	48
	2-10	15-27	1.35-1.40	0.60-2.00	0.10-0.13	0.0-2.9	2.0-3.0	.15	.28			
	10-29	35-45	1.35-1.45	0.06-0.20	0.15-0.17	3.0-5.9	1.0-2.0	.20	.20			
	29-34	27-35	1.25-1.40	0.20-0.60	0.14-0.18	3.0-5.9	0.5-1.0	.24	.24			
	34-44	---	---	0.06-2.00	---	---	---	---	---			
149: Zigzag-----	0-1	27-40	1.30-1.35	0.20-0.60	0.08-0.10	0.0-2.9	0.0-1.0	.10	.24	2	8	0
	1-5	27-40	1.30-1.40	0.06-0.60	0.16-0.19	3.0-5.9	0.0-1.0	.24	.24			
	5-19	35-55	1.30-1.40	0.06-0.20	0.15-0.19	6.0-8.9	0.0-0.5	.28	.28			
	19-29	---	---	0.00-0.20	---	---	---	---	---			
150: Zigzag-----	0-1	27-40	1.30-1.35	0.20-0.60	0.08-0.10	0.0-2.9	0.0-1.0	.10	.24	2	8	0
	1-5	27-40	1.30-1.40	0.06-0.60	0.16-0.19	3.0-5.9	0.0-1.0	.24	.24			
	5-19	35-55	1.30-1.40	0.06-0.20	0.15-0.19	6.0-8.9	0.0-0.5	.28	.28			
	19-29	---	---	0.00-0.20	---	---	---	---	---			
Sideshow-----	0-3	27-40	1.15-1.30	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	3-60	35-60	1.20-1.40	0.06-0.20	0.16-0.21	6.0-8.9	0.0-1.0	.24	.24			
151: Zyme-----	0-2	27-40	1.30-1.35	0.20-0.60	0.12-0.14	3.0-5.9	1.0-2.0	.10	.20	2	4L	86
	2-12	35-45	1.30-1.40	0.06-0.20	0.15-0.17	3.0-5.9	0.5-1.0	.24	.24			
	12-22	---	---	0.00-0.20	---	---	---	---	---			
152: Zyme-----	0-2	27-40	1.30-1.35	0.20-0.60	0.08-0.10	0.0-2.9	1.0-2.0	.05	.20	2	8	0
	2-12	35-45	1.30-1.40	0.06-0.20	0.15-0.17	3.0-5.9	0.5-1.0	.24	.24			
	12-22	---	---	0.00-0.20	---	---	---	---	---			

Table 16.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
1: Ackmen-----	0-6	10-25	7.4-7.8	0-5	0	0.0-2.0	0-1
	6-60	10-25	6.6-7.8	0-5	0	0.0-2.0	0
2: Ackmen-----	0-6	10-25	7.4-7.8	0-5	0	0.0-2.0	0-1
	6-60	10-25	6.6-7.8	0-5	0	0.0-2.0	0
3: Arabrab-----	0-4	3.0-15	6.6-7.8	0	0	0	0
	4-13	10-25	6.6-8.4	0-2	0	0	0
	13-16	10-25	6.6-8.4	1-5	0	0.0-2.0	0
	16-26	---	---	---	---	---	---
4: Arabrab-----	0-4	3.0-15	6.6-7.8	0	0	0	0
	4-13	10-25	6.6-8.4	0-2	0	0	0
	13-16	10-25	6.6-8.4	1-5	0	0.0-2.0	0
	16-26	---	---	---	---	---	---
Longburn-----	0-1	5.0-15	6.6-7.8	0	0	0	0
	1-4	5.0-15	6.6-7.8	0	0	0	0
	4-17	10-25	7.4-7.8	0-5	0	0	0
	17-27	---	---	---	---	---	---
5: Archuleta-----	0-1	---	---	---	---	---	---
	1-5	5.0-20	6.6-7.3	0	0	0	0
	5-13	5.0-20	6.6-7.3	0	0	0	0
	13-17	---	---	---	---	---	---
Sanchez-----	0-5	10-20	5.6-7.3	0	0	0.0-1.0	0-2
	5-11	10-25	5.6-7.3	0	0	0.0-1.0	0-2
	11-15	10-20	5.6-7.3	0	0	0.0-1.0	0-2
	15-19	---	---	---	---	---	---
6: Argiustolls-----	0-1	---	---	---	---	---	---
	1-4	10-25	6.1-7.8	0	0	0	0
	4-13	10-30	6.1-7.8	0	0	0	0
	13-20	10-25	6.1-7.8	0	0	0	0
	20-50	15-50	6.1-7.8	0	0	0	0
	50-60	15-35	6.1-7.8	0	0	0	0
Haplustalfs-----	0-5	5.0-20	6.1-7.4	0	0	0	0
	5-10	10-25	6.1-7.4	0	0	0	0
	10-41	10-30	6.1-7.8	0	0	0	0
	41-60	10-35	6.1-7.8	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
7:							
Argiustolls-----	0-1	---	---	---	---	---	---
	1-4	10-25	6.1-7.4	0	0	0	0
	4-13	10-30	6.1-7.4	0	0	0	0
	13-20	10-25	6.1-7.8	0	0	0	0
	20-50	15-50	6.1-7.8	0	0	0	0
	50-60	15-35	6.1-7.8	0	0	0	0
Haplustalfs-----	0-5	5.0-20	6.1-7.8	0	0	0	0
	5-10	10-25	6.1-7.8	0	0	0	0
	10-41	10-30	6.1-7.8	0	0	0	0
	41-60	10-35	6.1-7.8	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
8:							
Barx-----	0-3	5.0-15	6.6-8.4	0-2	0	0	0
	3-31	10-15	6.6-8.4	0-5	0	0	0
	31-60	5.0-15	7.9-9.0	15-30	0	0	0-5
9:							
Barx-----	0-3	5.0-15	6.6-8.4	0-2	0	0	0
	3-31	10-15	6.6-8.4	0-5	0	0	0
	31-60	5.0-15	7.9-9.0	15-30	0	0	0-5
10:							
Barx-----	0-3	5.0-10	7.4-8.4	0	0	0	0-5
	3-9	5.0-10	7.4-8.4	0	0	0	0-5
	9-23	10-20	7.4-8.4	0-3	0	0	0-5
	23-36	10-20	7.9-8.4	3-15	0	0.0-2.0	0-5
	36-55	5.0-15	7.9-9.0	15-40	0	0.0-2.0	0-5
	55-60	5.0-15	7.9-9.0	15-40	0	0.0-2.0	0-5
11:							
Barx-----	0-3	5.0-15	6.6-8.4	0-2	0	0	0
	3-31	10-15	6.6-8.4	0-5	0	0	0
	31-60	5.0-15	7.9-9.0	15-30	0	0	0-5
Gapmesa-----	0-2	5.0-15	6.6-7.3	0-3	0	0	0
	2-21	10-20	7.4-8.4	0-5	0	0	0
	21-28	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
	28-38	---	---	---	---	---	---
12:							
Battlerock-----	0-10	10-20	7.4-8.4	0-5	0	0.0-4.0	0
	10-60	5.0-20	7.4-8.4	4-15	0	0.0-4.0	0
13:							
Beje-----	0-2	10-25	6.6-7.3	0	0	0	0
	2-14	10-20	6.6-7.3	0	0	0	0
	14-24	---	---	---	---	---	---
Tragmon-----	0-5	10-20	6.1-7.8	0	0	0	0
	5-11	10-25	6.6-7.8	0	0	0	0
	11-40	10-25	6.6-8.4	0	0	0	0
	40-60	10-25	6.6-8.4	0-1	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
14: Burnson-----	0-1	---	---	---	---	---	---
	1-4	10-25	6.1-7.3	0	0	0	0
	4-8	20-35	6.1-7.3	0	0	0	0
	8-44	20-40	6.1-7.8	0	0	0	0
	44-54	---	---	---	---	---	---
15: Burnson, dry-----	0-1	---	---	---	---	---	---
	1-4	10-25	6.1-7.3	0	0	0	0
	4-8	20-35	6.1-7.3	0	0	0	0
	8-44	20-40	6.1-7.8	0	0	0	0
	44-54	---	---	---	---	---	---
16: Burnson-----	0-1	---	---	---	---	---	---
	1-4	10-25	6.1-7.3	0	0	0	0
	4-8	20-35	6.1-7.3	0	0	0	0
	8-44	20-40	6.1-7.8	0	0	0	0
	44-54	---	---	---	---	---	---
Herm-----	0-6	15-25	6.1-7.3	0	0	0	0
	6-13	20-35	6.1-7.3	0	0	0	0
	13-45	20-40	6.1-7.3	0	0	0	0
	45-60	20-30	6.6-7.8	0-5	0	0	0
17: Cahona-----	0-5	5.0-15	6.6-7.8	0-1	0	0	0
	5-25	10-20	7.4-8.4	1-10	0	0	0
	25-60	5.0-15	7.4-9.0	15-50	0	0.0-2.0	0-4
18: Cahona-----	0-5	5.0-15	6.6-7.8	0-1	0	0	0
	5-25	10-20	7.4-8.4	1-10	0	0	0
	25-60	5.0-15	7.4-9.0	15-50	0	0.0-2.0	0-4
19: Cahona-----	0-5	5.0-15	6.6-7.8	0-1	0	0	0
	5-25	10-20	7.4-8.4	1-10	0	0	0
	25-60	5.0-15	7.4-9.0	15-50	0	0.0-2.0	0-4
20: Cahona-----	0-5	5.0-15	6.6-7.8	0-1	0	0	0
	5-25	10-20	7.4-8.4	1-10	0	0	0
	25-60	5.0-15	7.4-9.0	15-50	0	0.0-2.0	0-4
Pulpit-----	0-10	5.0-20	6.6-7.8	0-1	0	0	0
	10-20	10-25	6.6-8.4	0-5	0	0	0
	20-36	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
	36-46	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
21:							
Cahona-----	0-5	5.0-15	6.6-7.8	0-1	0	0	0
	5-25	10-20	7.4-8.4	1-10	0	0	0
	25-60	5.0-15	7.4-9.0	15-50	0	0.0-2.0	0-4
Sharps-----	0-9	5.0-15	6.6-7.8	0-1	0	0	0
	9-19	10-20	6.6-8.4	5-10	0	0	0
	19-30	10-20	7.9-8.4	10-15	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
Wetherill-----	0-3	5.0-20	6.6-7.8	0-1	0	0	0
	3-7	10-25	6.6-7.8	0-1	0	0	0
	7-48	5.0-20	7.4-8.4	1-10	0	0	0
	48-60	5.0-15	7.9-8.4	5-30	0	0.0-2.0	0-4
22:							
Claysprings-----	0-3	10-35	7.9-9.2	1-15	0-5	0.0-4.0	0-10
	3-18	20-40	7.9-9.2	1-15	0-10	0.0-4.0	0-20
	18-28	---	---	---	---	---	---
23:							
Collide-----	0-10	20-35	6.6-7.8	0	0	0	0
	10-29	20-40	7.4-8.4	0	0	0	0
	29-60	20-40	7.4-8.4	1-15	0	0	0
24:							
Collide-----	0-10	20-35	6.6-7.8	0	0	0	0
	10-29	20-40	7.4-8.4	0	0	0	0
	29-60	20-40	7.4-8.4	1-15	0	0	0
25:							
Collide-----	0-10	20-35	6.6-7.8	0	0	0	0
	10-29	20-40	7.4-8.4	0	0	0	0
	29-60	20-40	7.4-8.4	1-15	0	0	0
Collide, cobbly Substratum-----	0-2	15-30	6.6-7.8	0	0	0	0
	2-8	20-35	6.6-7.8	0	0	0	0
	8-45	20-40	7.4-8.4	0-5	0	0.0-2.0	0
	45-60	5.0-20	7.9-8.4	1-10	0	0.0-2.0	0
26:							
Collide-----	0-10	20-35	6.6-7.8	0	0	0	0
	10-29	20-40	7.4-8.4	0	0	0	0
	29-60	20-40	7.4-8.4	1-15	0	0	0
Collide, cobbly Substratum-----	0-2	15-30	6.6-7.8	0	0	0	0
	2-8	20-35	6.6-7.8	0	0	0	0
	8-45	20-40	7.4-8.4	0-5	0	0.0-2.0	0
	45-60	5.0-20	7.9-8.4	1-10	0	0.0-2.0	0
27:							
Dalmatian-----	0-39	10-25	6.6-7.3	0	0	0	0
	39-49	10-20	6.6-7.3	0	0	0	0
	49-60	5.0-15	6.6-7.3	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
27:							
Apmay-----	0-4	15-30	5.6-7.3	0	0	0	0
	4-18	20-35	6.6-7.3	0	0	0	0
	18-22	10-15	6.6-7.3	0	0	0	0
	22-60	10-15	6.6-7.3	0	0	0	0
Schrader-----	0-13	15-30	6.6-7.8	0	0	0	0
	13-17	10-20	6.6-7.8	0	0	0	0
	17-24	10-25	6.6-7.8	0	0	0	0
	24-60	5.0-20	6.6-7.8	0	0	0	0
28:							
Dam-----	---	---	---	---	---	---	---
29:							
Endoaquolls-----	0-4	5.0-15	6.6-7.8	0-1	0	0	0
	4-28	10-20	6.6-7.8	0-2	0	0	0
	28-60	5.0-10	6.6-7.8	0-2	0	0	0
Ustifluvents-----	0-6	10-20	6.1-7.3	0	0	0	0
	6-17	5.0-20	6.1-7.3	0	0	0	0
	17-24	5.0-15	6.1-7.3	0	0	0	0
	24-30	5.0-20	6.1-7.3	0	0	0	0
	30-60	0.0-5.0	6.1-7.3	0	0	0	0
30:							
Falconry-----	0-1	---	---	---	---	---	---
	1-5	10-20	6.1-7.3	0	0	0	0
	5-14	5.0-15	6.1-7.3	0	0	0	0
	14-24	---	---	---	---	---	---
31:							
Farb-----	0-3	5.0-15	7.4-8.4	1-15	0	0	0
	3-16	1.0-15	7.4-8.4	1-15	0	0.0-2.0	0
	16-26	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
32:							
Fardraw-----	0-11	10-25	6.1-7.3	0	0	0	0
	11-15	25-40	6.1-7.3	0	0	0	0
	15-51	20-40	6.1-7.3	0	0	0	0
	51-60	20-35	6.1-7.3	0	0	0	0
33:							
Fardraw-----	0-9	10-25	6.6-7.8	0	0	0	0
	9-13	10-25	6.6-7.8	0	0	0	0
	13-60	20-40	6.6-7.8	0	0	0	0
34:							
Fardraw-----	0-9	10-25	6.6-7.8	0	0	0	0
	9-13	10-25	6.6-7.8	0	0	0	0
	13-60	20-40	6.6-7.8	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
35:							
Fardraw-----	0-9	10-25	6.6-7.8	0	0	0	0
	9-13	10-25	6.6-7.8	0	0	0	0
	13-60	20-40	6.6-7.8	0	0	0	0
Granath-----	0-1	---	---	---	---	---	---
	1-14	10-25	6.6-7.3	0	0	0	0
	14-60	10-25	6.6-7.8	0-5	0	0	0
36:							
Fivepine-----	0-3	10-20	6.1-7.8	0	0	0	0
	3-9	10-25	6.1-7.8	0	0	0	0
	9-12	10-25	6.1-7.8	0	0	0	0
	12-15	15-30	6.1-7.8	0	0	0	0
	15-25	---	---	---	---	---	---
Nortez-----	0-3	10-25	6.6-7.8	0	0	0	0
	3-10	20-30	6.6-7.8	0	0	0	0
	10-32	30-50	6.6-8.4	0-1	0	0	0
	32-42	---	---	---	---	---	---
37:							
Fluvaquents-----	0-8	5.0-30	6.6-7.8	0	0	0	0
	8-60	0.0-10	6.6-7.8	0	0	0	0
Haplustolls-----	0-4	5.0-20	6.6-7.8	0	0	0	0
	4-19	5.0-20	6.6-7.8	0-2	0	0	0
	19-24	5.0-10	6.6-7.8	0-5	0	0	0
	24-60	0.0-10	7.4-8.4	0-5	0	0.0-2.0	0
38:							
Fluvents-----	0-6	---	7.4-8.4	---	---	---	---
	6-60	0.0-5.0	7.4-8.4	0-5	0	0	0
Fluvaquents-----	0-8	5.0-30	6.6-7.8	0	0	0	0
	8-60	0.0-10	6.6-7.8	0	0	0	0
39:							
Fughes-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-26	20-35	6.1-7.3	0	0	0	0
	26-44	25-40	6.1-7.3	0	0	0	0
	44-60	25-40	6.1-7.3	0	0	0	0
40:							
Fughes-----	0-8	10-25	6.1-7.3	0	0	0	0
	8-26	20-35	6.1-7.3	0	0	0	0
	26-44	25-45	6.1-7.3	0	0	0	0
	44-60	20-45	6.1-7.3	0	0	0	0
Herm-----	0-6	15-25	6.1-7.3	0	0	0	0
	6-13	20-35	6.1-7.3	0	0	0	0
	13-45	20-40	6.1-7.3	0	0	0	0
	45-60	20-30	6.6-8.4	0-5	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
41:							
Fughes-----	0-7	10-25	6.1-6.5	0	0	0	0
	7-26	10-30	6.1-7.3	0	0	0	0
	26-34	15-35	6.1-7.3	0	0	0	0
	34-44	25-50	6.1-7.3	0	0	0	0
	44-60	25-50	6.1-7.3	0	0	0	0
Sheek-----	0-2	15-25	6.6-7.8	0	0	0	0
	2-7	10-25	6.6-7.8	0	0	0	0
	7-20	10-25	6.6-7.8	0	0	0	0
	20-29	5.0-15	6.6-7.8	0	0	0	0
	29-46	10-25	6.6-7.8	0	0	0	0
	46-60	5.0-15	6.6-7.8	0	0	0	0
42:							
Gladel-----	0-5	5.0-15	7.4-8.4	0-5	0	0	0
	5-10	5.0-15	7.9-8.4	2-15	0	0.0-2.0	0
	10-15	5.0-15	7.9-8.4	2-5	0	0.0-2.0	0
	15-25	---	---	---	---	---	---
Pulpit-----	0-10	5.0-20	6.6-7.8	0-1	0	0	0
	10-20	10-25	6.6-8.4	0-5	0	0	0
	20-36	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
	36-46	---	---	---	---	---	---
43:							
Goldbug-----	0-1	---	---	---	---	---	---
	1-21	5.0-15	6.1-7.3	0	0	0	0
	21-29	5.0-25	6.1-7.3	0	0	0	0
	29-60	20-40	6.1-7.3	0	0	0	0
44:							
Granath-----	0-1	---	---	---	---	---	---
	1-14	10-25	6.6-7.3	0	0	0	0
	14-60	10-25	6.6-7.8	0-5	0	0	0
45:							
Granath-----	0-1	---	---	---	---	---	---
	1-14	10-25	6.6-7.3	0	0	0	0
	14-60	10-25	6.6-7.8	0-5	0	0	0
46:							
Granath-----	0-10	10-25	6.6-7.8	0	0	0	0
	10-40	15-35	6.6-7.8	0-5	0	0	0
	40-60	15-30	7.9-8.4	1-25	0	0	0
Fughes-----	0-7	10-25	6.1-6.5	0	0	0	0
	7-26	10-30	6.1-7.3	0	0	0	0
	26-34	15-35	6.1-7.3	0	0	0	0
	34-44	25-50	6.1-7.3	0	0	0	0
	44-60	25-50	6.1-7.3	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
47:							
Granath-----	0-10	10-25	6.6-7.8	0	0	0	0
	10-40	15-35	6.6-7.8	0	0	0	0
	40-60	15-30	7.9-8.4	1-25	0	0	0
Nortez-----	0-3	10-25	6.6-7.8	0	0	0	0
	3-10	20-30	6.6-7.8	0	0	0	0
	10-32	30-50	6.6-8.4	0-1	0	0	0
	32-42	---	---	---	---	---	---
48:							
Granath-----	0-10	10-25	6.6-7.8	0	0	0	0
	10-40	15-35	6.6-7.8	0	0	0	0
	40-60	15-30	7.9-8.4	1-25	0	0	0
Ormiston-----	0-7	15-30	6.6-7.3	0	0	0	0
	7-32	20-50	6.6-7.8	0	0	0	0
	32-44	15-35	7.4-8.4	15-40	0	0.0-2.0	0
	44-54	---	---	---	---	---	---
Fivepine-----	0-3	10-20	6.1-7.8	0	0	0	0
	3-9	10-25	6.1-7.8	0	0	0	0
	9-12	10-25	6.1-7.8	0	0	0	0
	12-15	15-30	6.1-7.8	0	0	0	0
	15-25	---	---	---	---	---	---
49:							
Herm-----	0-7	15-25	6.1-7.3	0	0	0	0
	7-34	20-40	6.6-7.8	0	0	0	0
	34-60	20-30	6.6-7.8	0-5	0	0	0
50:							
Herm-----	0-1	10-25	6.6-7.8	0	0	0	0
	1-10	10-25	6.6-7.8	0	0	0	0
	10-60	20-35	6.6-8.4	0-5	0	0	0
51:							
Herm-----	0-6	15-25	6.1-7.3	0	0	0	0
	6-13	20-35	6.1-7.3	0	0	0	0
	13-45	20-40	6.1-7.8	0	0	0	0
	45-60	20-30	6.6-8.4	0-5	0	0	0
Pagoda-----	0-1	---	---	---	---	---	---
	1-5	10-25	6.6-7.3	0	0	0	0
	5-21	20-40	6.6-7.3	0-1	0	0	0
	21-60	15-35	7.9-8.4	1-10	0	0.0-2.0	0
52:							
Hesperus-----	0-11	10-25	6.1-7.8	0	0	0	0
	11-44	15-35	6.1-7.8	0	0	0	0
	44-60	10-30	6.1-7.8	0-5	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
53:							
Hesperus-----	0-11	10-25	6.1-7.8	0	0	0	0
	11-44	15-35	6.1-7.8	0	0	0	0
	44-60	10-30	6.1-7.8	0-5	0	0	0
54:							
Hesperus-----	0-11	10-25	6.1-7.8	0	0	0	0
	11-44	15-35	6.1-7.8	0	0	0	0
	44-60	10-30	6.1-7.8	0-5	0	0	0
55:							
Hesperus-----	0-11	5.0-20	6.1-7.8	0	0	0	0
	11-44	15-35	6.1-7.8	0	0	0	0
	44-60	10-30	6.1-7.8	0-5	0	0	0
56:							
Ilex-----	0-2	10-20	6.6-8.4	0	0	0	0
	2-22	20-40	6.6-8.4	0-5	0	0	0
	22-37	5.0-40	6.6-8.4	5-40	0	0	0
	37-60	5.0-35	7.9-8.4	15-40	0	0	0
57:							
Ilex-----	0-2	10-20	6.6-8.4	0	0	0	0
	2-22	20-40	6.6-8.4	0-5	0	0	0
	22-37	5.0-40	6.6-8.4	5-40	0	0	0
	37-60	5.0-35	7.9-8.4	15-40	0	0	0
58:							
Ilex-----	0-2	10-20	6.6-8.4	0	0	0	0
	2-22	20-40	6.6-8.4	0-5	0	0	0
	22-37	5.0-40	6.6-8.4	5-40	0	0	0
	37-60	5.0-35	7.9-8.4	15-40	0	0	0
Granath-----	0-1	---	---	---	---	---	---
	1-14	10-25	6.6-7.3	0	0	0	0
	14-60	10-25	6.6-7.8	0-5	0	0	0
59:							
Ilex-----	0-2	10-20	6.6-8.4	0	0	0	0
	2-22	20-40	6.6-8.4	0-5	0	0	0
	22-37	5.0-40	6.6-8.4	5-40	0	0	0
	37-60	5.0-35	7.9-8.4	15-40	0	0	0
Granath-----	0-1	---	---	---	---	---	---
	1-14	10-25	6.6-7.3	0	0	0	0
	14-60	10-25	6.6-7.8	0-5	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
60:							
Ilex-----	0-2	10-20	6.6-8.4	0	0	0	0
	2-22	20-40	6.6-8.4	0-5	0	0	0
	22-37	5.0-40	6.6-8.4	5-40	0	0	0
	37-60	5.0-35	7.9-8.4	15-40	0	0	0
Pramiss-----	0-3	10-25	6.6-7.8	0	0	0	0
	3-16	15-45	6.6-8.4	0	0	0	0
	16-31	15-40	7.4-8.4	5-15	0	0.0-2.0	0
	31-41	---	---	---	---	---	---
Falconry-----	0-1	---	---	---	---	---	---
	1-5	10-20	6.1-7.3	0	0	0	0
	5-14	5.0-15	6.1-7.3	0	0	0	0
	14-24	---	---	---	---	---	---
61:							
Ilex-----	0-2	10-20	6.6-8.4	0	0	0	0
	2-22	20-40	6.6-8.4	0-5	0	0	0
	22-37	5.0-40	6.6-8.4	5-40	0	0	0
	37-60	5.0-35	7.9-8.4	15-40	0	0	0
Pramiss-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-16	15-45	6.6-8.4	0	0	0	0
	16-31	15-40	7.4-8.4	5-15	0	0.0-2.0	0
	31-41	---	---	---	---	---	---
Granath-----	0-1	---	---	---	---	---	---
	1-14	10-25	6.6-7.3	0	0	0	0
	14-60	10-25	6.6-7.8	0-5	0	0	0
62:							
Irak-----	0-8	10-25	6.6-8.4	0-5	0	0	0
	8-60	5.0-25	6.6-8.4	1-5	0	0.0-4.0	0
63:							
Jemco-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-22	10-20	6.1-7.3	0	0	0	0
	22-39	15-30	6.1-7.3	0	0	0	0
	39-49	---	---	---	---	---	---
Detra-----	0-16	10-25	6.6-7.8	0	0	0	0
	16-43	10-30	6.6-7.8	0	0	0	0
	43-57	10-25	6.6-7.8	0	0	0	0
	57-67	---	---	---	---	---	---
Beje-----	0-2	10-25	6.6-7.3	0	0	0	0
	2-6	10-20	6.6-7.3	0	0	0	0
	6-14	5.0-25	6.6-7.3	0	0	0	0
	14-24	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
64:							
Lazear-----	0-5	5.0-15	7.4-9.0	1-15	0	0.0-2.0	0
	5-15	5.0-20	7.4-9.0	1-15	0	0.0-2.0	0
	15-19	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
65:							
Lillings-----	0-2	5.0-20	7.4-9.0	0-15	0	8.0-16.0	5-15
	2-60	5.0-20	7.4-9.4	10-15	0-5	4.0-16.0	5-10
66:							
Lillings-----	0-2	10-25	7.4-9.0	0-15	0	0.0-4.0	1-10
	2-60	5.0-20	7.4-9.0	10-15	0-5	4.0-16.0	5-10
67:							
Lillings-----	0-2	10-25	7.4-9.0	0-15	0	0.0-4.0	1-10
	2-60	5.0-20	7.4-9.0	10-15	0-5	4.0-16.0	5-10
68:							
Longburn-----	0-1	5.0-15	6.6-7.8	0	0	0	0
	1-4	5.0-15	6.6-7.8	0	0	0	0
	4-17	10-25	7.4-7.8	0-5	0	0	0
	17-27	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
69:							
Longburn-----	0-1	5.0-15	6.6-7.8	0	0	0	0
	1-4	5.0-15	6.6-7.8	0	0	0	0
	4-17	10-25	7.4-7.8	0-5	0	0	0
	17-27	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
70:							
Mack-----	0-13	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	13-33	5.0-25	7.4-8.4	1-15	0	0.0-2.0	0-2
	33-60	5.0-15	7.9-9.0	15-25	0	2.0-8.0	0-10
71:							
Mikett-----	0-8	10-25	7.9-9.0	5-10	0-5	4.0-8.0	5-15
	8-60	5.0-25	8.5-9.6	5-10	0-5	8.0-16.0	15-20
72:							
Mikett-----	0-8	10-20	7.9-9.0	1-5	0	4.0-8.0	0-5
	8-60	5.0-20	8.5-9.0	5-10	0	4.0-8.0	5-15
73:							
Mikim-----	0-3	10-20	7.4-8.4	0-5	0	0.0-2.0	0
	3-15	10-20	7.4-8.4	0-5	0	0.0-2.0	0
	15-32	5.0-20	7.4-8.4	0-5	0	0.0-2.0	0
	32-60	10-20	7.4-8.4	0-5	0	0.0-2.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
74:							
Mikim-----	0-3	10-20	7.4-8.4	1-5	0	8.0-16.0	0-10
	3-15	10-20	7.9-9.0	1-5	0	8.0-16.0	0-10
	15-32	5.0-20	7.9-9.0	3-10	0	8.0-16.0	0-10
	32-60	10-20	7.9-9.0	5-10	0	8.0-16.0	0-10
75:							
Mikim-----	0-3	5.0-15	7.4-8.4	0-5	0	0.0-2.0	0
	3-15	10-20	7.4-8.4	0-5	0	0.0-2.0	0
	15-32	5.0-20	7.4-8.4	0-5	0	0.0-2.0	0
	32-60	10-20	7.4-8.4	0-5	0	0.0-2.0	0
76:							
Morefield-----	0-2	5.0-20	6.6-7.8	0-1	0	0	0
	2-24	10-20	6.6-7.8	0-1	0	0	0
	24-60	5.0-15	7.4-7.8	5-15	0	0	0
77:							
Morefield-----	0-2	5.0-20	6.6-7.8	0-1	0	0	0
	2-24	10-20	6.6-7.8	0-1	0	0	0
	24-60	5.0-15	7.4-7.8	5-15	0	0	0
78:							
Nortez-----	0-2	10-25	6.6-7.8	0	0	0	0
	2-6	20-30	6.6-7.8	0	0	0	0
	6-31	30-50	6.6-8.4	0-1	0	0	0
	31-41	---	---	---	---	---	---
Granath-----	0-1	---	---	---	---	---	---
	1-14	10-25	6.6-7.3	0	0	0	0
	14-60	10-25	6.6-7.8	0-5	0	0	0
79:							
Northrim-----	0-2	---	---	---	---	---	---
	2-9	10-20	6.6-7.3	0	0	0	0
	9-22	10-25	6.6-7.8	0	0	0	0
	22-60	10-25	6.6-7.8	0	0	0	0
80:							
Ormiston-----	0-7	15-30	6.6-7.3	0	0	0	0
	7-32	20-50	6.6-7.8	0	0	0	0
	32-44	15-35	7.4-8.4	15-40	0	0.0-2.0	0
	44-54	---	---	---	---	---	---
Beje-----	0-2	10-25	6.6-7.3	0	0	0	0
	2-6	10-20	6.6-7.3	0	0	0	0
	6-14	5.0-25	6.6-7.3	0	0	0	0
	14-24	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
81:							
Ormiston-----	0-7	15-30	6.6-7.3	0	0	0	0
	7-32	20-50	6.6-7.8	0	0	0	0
	32-44	15-35	7.4-8.4	15-40	0	0.0-2.0	0
	44-54	---	---	---	---	---	---
Fivepine-----	0-3	10-20	6.1-7.8	0	0	0	0
	3-9	10-25	6.1-7.8	0	0	0	0
	9-12	10-25	6.1-7.8	0	0	0	0
	12-15	15-30	6.1-7.8	0	0	0	0
	15-25	---	---	---	---	---	---
82:							
Ormiston-----	0-3	10-30	6.6-7.3	0	0	0	0
	3-7	15-30	6.6-7.3	0	0	0	0
	7-32	20-50	6.6-7.8	0	0	0	0
	32-44	15-35	7.4-8.4	15-40	0	0.0-2.0	0
	44-54	---	---	---	---	---	---
Granath-----	0-1	---	---	---	---	---	---
	1-14	10-25	6.6-7.3	0	0	0	0
	14-60	10-25	6.6-7.8	0-5	0	0	0
83:							
Ormiston-----	0-3	10-30	6.6-7.3	0	0	0	0
	3-7	15-30	6.6-7.3	0	0	0	0
	7-32	20-50	6.6-7.8	0	0	0	0
	32-44	15-35	7.4-8.4	15-40	0	0.0-2.0	0
	44-54	---	---	---	---	---	---
Nortez-----	0-2	10-25	6.6-7.8	0	0	0	0
	2-6	20-30	6.6-7.8	0	0	0	0
	6-31	30-50	6.6-8.4	0-1	0	0	0
	31-41	---	---	---	---	---	---
84:							
Payter-----	0-11	5.0-15	6.6-7.8	0-1	0	0	0
	11-39	5.0-15	7.4-8.4	0-2	0	0.0-2.0	0
	39-60	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
85:							
Pinacol-----	0-7	10-30	6.6-7.8	0	0	0.0-1.0	0-2
	7-21	15-30	6.1-7.8	0	0	0.0-1.0	0-2
	21-38	15-35	6.1-7.8	0	0	0.0-1.0	0-2
	38-60	10-25	6.6-7.8	0	0	0.0-1.0	0-2
86:							
Pinacol-----	0-7	10-30	6.6-7.8	0	0	0.0-1.0	0-2
	7-21	15-30	6.1-7.8	0	0	0.0-1.0	0-2
	21-38	15-35	6.1-7.8	0	0	0.0-1.0	0-2
	38-60	10-25	6.6-7.8	0	0	0.0-1.0	0-2

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
87: Pits-----	0-60	---	---	---	---	---	---
88: Pogo-----	0-2	5.0-20	7.9-9.0	0-5	0-1	0.0-4.0	0-5
	2-60	5.0-30	7.9-9.0	1-15	0-1	0.0-4.0	0-5
89: Pramiss-----	0-3	10-25	6.6-7.8	0	0	0	0
	3-16	15-45	6.6-8.4	0	0	0	0
	16-31	15-40	7.4-8.4	5-15	0	0.0-2.0	0
	31-41	---	---	---	---	---	---
90: Pramiss-----	0-3	10-25	6.6-7.8	0	0	0	0
	3-16	15-45	6.6-8.4	0	0	0	0
	16-31	15-40	7.4-8.4	5-15	0	0.0-2.0	0
	31-41	---	---	---	---	---	---
Granath-----	0-1	---	---	---	---	---	---
	1-14	10-25	6.6-7.3	0	0	0	0
	14-60	10-25	6.6-7.8	0-5	0	0	0
91: Prater-----	0-1	10-25	6.6-7.3	0	0	0	0
	1-3	15-30	6.6-7.3	0	0	0	0
	3-9	15-30	6.6-8.4	0	0	0	0
	9-21	15-30	6.6-8.4	1-10	0	0	0
	21-60	15-30	6.6-8.4	1-10	0	0	0
92: Prater-----	0-1	10-25	6.6-7.3	0	0	0	0
	1-3	15-30	6.6-7.3	0	0	0	0
	3-9	15-30	6.6-8.4	0	0	0	0
	9-21	15-30	6.6-8.4	1-10	0	0	0
	21-60	15-30	6.6-8.4	1-10	0	0	0
Dolcan-----	0-2	5.0-15	7.4-7.8	0-2	0	0	0
	2-11	10-20	7.4-8.4	0-5	0	0	0
	11-21	---	---	---	---	---	---
93: Pulpit-----	0-5	5.0-15	6.6-7.8	0	0	0	0
	5-21	10-20	6.6-8.4	0-5	0	0	0
	21-35	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
	35-39	---	---	---	---	---	---
94: Pulpit-----	0-10	5.0-20	6.6-7.8	0-1	0	0	0
	10-20	10-25	6.6-8.4	0-5	0	0	0
	20-36	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
	36-46	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
95:							
Pulpit-----	0-10	5.0-20	6.6-7.8	0-1	0	0	0
	10-20	10-25	6.6-8.4	0-5	0	0	0
	20-36	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
	36-46	---	---	---	---	---	---
96:							
Purcella-----	0-4	5.0-20	6.6-7.8	0	0	0	0
	4-11	10-20	6.6-7.8	0	0	0	0
	11-41	10-25	6.6-7.8	0	0	0	0
	41-60	5.0-15	7.4-8.4	0-15	0	0.0-2.0	0
97:							
Ramper-----	0-3	10-25	7.4-8.4	1-5	0	0.0-4.0	0
	3-60	5.0-20	7.4-8.4	5-10	0	2.0-8.0	0
98:							
Ramper-----	0-3	5.0-20	7.4-8.4	1-5	0	0.0-4.0	0
	3-60	5.0-20	7.4-8.4	5-10	0	2.0-8.0	0
99:							
Ravola-----	0-9	10-20	8.5-9.4	2-15	0-5	8.0-16.0	15-50
	9-60	5.0-20	7.4-9.0	2-15	0-5	4.0-8.0	2-30
100:							
Recapture-----	0-7	3.0-15	7.9-9.0	0-15	0	0.0-4.0	5-25
	7-26	5.0-20	8.5-9.6	1-25	0-3	4.0-8.0	15-40
	26-60	5.0-15	8.5-9.6	1-25	0-2	4.0-8.0	5-25
101:							
Recapture-----	0-6	5.0-15	7.9-9.0	1-5	0-2	4.0-16.0	5-15
	6-13	10-25	7.9-9.0	1-5	0-2	4.0-16.0	5-15
	13-17	5.0-15	8.5-9.6	1-5	0-2	4.0-8.0	13-35
	17-38	10-25	8.5-9.6	5-15	0-10	4.0-16.0	13-35
	38-60	5.0-15	8.5-9.6	5-15	0-10	4.0-16.0	5-15
102:							
Ricot-----	0-12	10-20	6.6-7.8	0	0	0	0
	12-16	10-25	6.6-7.8	0	0	0	0
	16-34	15-30	6.6-8.4	0-5	0	0	0
	34-60	15-30	7.4-8.4	1-10	0	0	0
103:							
Ricot-----	0-12	10-20	6.6-7.8	0	0	0	0
	12-16	10-25	6.6-7.8	0	0	0	0
	16-34	15-30	6.6-8.4	0-5	0	0	0
	34-60	15-30	7.4-8.4	1-10	0	0	0
104:							
Ricot-----	0-12	10-20	6.6-7.8	0	0	0	0
	12-16	10-25	6.6-7.8	0	0	0	0
	16-34	15-30	6.6-8.4	0-5	0	0	0
	34-60	15-30	7.4-8.4	1-10	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
105:							
Rizno-----	0-5	5.0-15	7.4-8.4	0	0	0	0
	5-13	5.0-10	7.9-8.4	5-15	0	0.0-2.0	0
	13-23	---	---	---	---	---	---
Gapmesa-----	0-2	5.0-15	6.6-7.3	0-3	0	0	0
	2-21	10-20	7.4-8.4	0-5	0	0	0
	21-28	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
	28-38	---	---	---	---	---	---
106:							
Rizno-----	0-3	10-20	7.4-8.4	5-15	0	0.0-2.0	0
	3-13	5.0-10	7.4-8.4	5-15	0	0.0-2.0	0
	13-23	---	---	---	---	---	---
Littlenan-----	0-3	10-20	7.9-8.4	1-10	0	0.0-2.0	0
	3-29	20-35	7.9-9.0	5-15	0	2.0-4.0	0
	29-39	---	---	---	---	---	---
Bodry-----	0-6	15-25	7.4-8.4	0-5	0	0.0-2.0	0
	6-15	20-35	7.4-8.4	1-10	0	0.0-2.0	0
	15-36	25-60	7.4-8.4	1-10	0	0.0-2.0	0
	36-46	---	---	---	---	---	---
107:							
Rizno-----	0-3	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
	3-13	5.0-10	7.4-8.4	1-15	0	0.0-2.0	0
	13-23	---	---	---	---	---	---
Ruinpoint-----	0-2	5.0-15	7.4-8.4	0	0	0	0
	2-13	10-20	7.4-8.4	0	0	0	0
	13-23	10-20	7.9-9.0	15-30	0	0.0-2.0	0
	23-60	10-20	7.9-9.0	15-30	0	0.0-2.0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
108:							
Rock outcrop-----	0-60	---	---	---	---	---	---
109:							
Romberg-----	0-2	10-20	6.6-7.8	0-5	0	0	0
	2-20	10-25	7.4-8.4	1-15	0	0.0-2.0	0
	20-60	10-25	7.4-8.4	1-15	0	0.0-2.0	0
Crosscan-----	0-2	10-25	7.4-8.4	0-5	0	0	0
	2-18	10-20	7.4-8.4	1-15	0	0.0-2.0	0
	18-28	---	---	---	---	---	---
110:							
Romberg-----	0-2	10-20	6.6-7.8	0-5	0	0	0
	2-20	10-25	7.4-8.4	1-15	0	0.0-2.0	0
	20-60	10-25	7.4-8.4	1-15	0	0.0-2.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
110:							
Crosscan-----	0-2	10-25	7.4-8.4	0-5	0	0	0
	2-18	10-20	7.4-8.4	1-15	0	0.0-2.0	0
	18-28	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
111:							
Roubideau-----	0-6	5.0-20	6.6-7.8	0	0	0	0
	6-36	10-25	6.6-7.8	0	0	0	0
	36-38	10-25	6.6-7.8	0	0	0	0
	38-48	---	---	---	---	---	---
112:							
Sharps-----	0-9	5.0-15	6.6-7.8	0-1	0	0	0
	9-19	10-20	6.6-8.4	5-10	0	0	0
	19-30	10-20	7.9-8.4	10-15	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
113:							
Sharps-----	0-9	5.0-15	6.6-7.8	0-1	0	0	0
	9-19	10-20	6.6-8.4	5-10	0	0	0
	19-30	10-20	7.9-8.4	10-15	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
114:							
Sharps, dry-----	0-2	5.0-15	7.4-8.4	0-1	0	0	0
	2-12	10-20	7.4-8.4	5-10	0	0	0
	12-27	10-20	7.9-8.4	10-15	0	0.0-2.0	0
	27-32	10-20	7.9-8.4	1-10	0	0.0-2.0	0
	32-42	---	---	---	---	---	---
115:							
Sharps, dry-----	0-2	5.0-15	7.4-8.4	0-1	0	0	0
	2-12	10-20	7.4-8.4	5-10	0	0	0
	12-27	10-20	7.9-8.4	10-15	0	0.0-2.0	0
	27-32	10-20	7.9-8.4	1-10	0	0.0-2.0	0
	32-42	---	---	---	---	---	---
Gapmesa-----	0-2	5.0-15	6.6-7.3	0-3	0	0	0
	2-21	10-20	7.4-8.4	0-5	0	0	0
	21-28	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
	28-38	---	---	---	---	---	---
116:							
Sharps-----	0-9	5.0-15	6.6-7.8	0-1	0	0	0
	9-19	10-20	6.6-8.4	5-10	0	0	0
	19-30	10-20	7.9-8.4	10-15	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
Cahona-----	0-5	5.0-15	6.6-7.8	0-1	0	0	0
	5-25	10-20	7.4-8.4	1-10	0	0	0
	25-60	5.0-15	7.4-9.0	15-50	0	0.0-2.0	0-4

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
117:							
Sharps-----	0-9	5.0-15	6.6-7.8	0-1	0	0	0
	9-19	10-20	6.6-8.4	5-10	0	0	0
	19-30	10-20	7.9-8.4	10-15	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
Pulpit-----	0-10	5.0-20	6.6-7.8	0-1	0	0	0
	10-20	10-25	6.6-8.4	0-5	0	0	0
	20-36	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
	36-46	---	---	---	---	---	---
118:							
Sharps-----	0-9	5.0-15	6.6-7.8	0-1	0	0	0
	9-19	10-20	6.6-8.4	5-10	0	0	0
	19-30	10-20	7.9-8.4	10-15	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
Pulpit-----	0-10	5.0-20	6.6-7.8	0-1	0	0	0
	10-20	10-25	6.6-8.4	0-5	0	0	0
	20-36	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
	36-46	---	---	---	---	---	---
119:							
Sheek-----	0-1	---	---	---	---	---	---
	1-5	10-20	6.6-7.3	0	0	0	0
	5-60	10-25	6.1-7.8	0	0	0	0
Archuleta-----	0-1	---	---	---	---	---	---
	1-6	5.0-20	6.1-7.8	0	0	0	0
	6-18	10-25	6.1-7.8	0	0	0	0
	18-28	---	---	---	---	---	---
120:							
Sheek-----	0-1	---	---	---	---	---	---
	1-5	10-20	6.6-7.3	0	0	0	0
	5-60	10-25	6.1-7.8	0	0	0	0
Archuleta-----	0-1	---	---	---	---	---	---
	1-6	5.0-20	6.1-7.8	0	0	0	0
	6-18	10-25	6.1-7.8	0	0	0	0
	18-28	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
121:							
Sheek-----	0-1	---	---	---	---	---	---
	1-5	10-20	6.6-7.3	0	0	0	0
	5-60	10-25	6.1-7.8	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
121:							
Archuleta-----	0-1	---	---	---	---	---	---
	1-6	5.0-20	6.1-7.8	0	0	0	0
	6-18	10-25	6.1-7.8	0	0	0	0
	18-28	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
122:							
Sheppard-----	0-7	1.0-10	7.4-8.4	0-5	0	0	0
	7-60	1.0-5.0	7.4-8.4	0-10	0	0.0-2.0	0
123:							
Sideshow-----	0-3	20-35	7.4-8.4	0-5	0	2.0-4.0	0
	3-60	20-40	7.4-8.4	0-5	0	0.0-2.0	0
124:							
Sideshow-----	0-3	20-35	7.4-8.4	0-5	0	2.0-4.0	0
	3-60	20-40	7.4-8.4	0-5	0	0.0-2.0	0
125:							
Sideshow-----	0-3	20-35	7.4-8.4	0-5	0	2.0-4.0	0
	3-60	20-40	7.4-8.4	0-5	0	0.0-2.0	0
126:							
Sideshow-----	0-3	20-35	7.4-8.4	0-5	0	2.0-4.0	0
	3-60	20-40	7.4-8.4	0-5	0	0.0-2.0	0
Zigzag-----	0-1	15-30	7.4-8.4	1-5	0	0.0-2.0	0
	1-5	15-30	7.4-8.4	1-5	0	0.0-2.0	0
	5-19	20-45	7.4-8.4	1-10	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
127:							
Sideslide-----	0-3	20-35	7.4-8.4	0-1	0	0.0-4.0	0
	3-40	10-25	7.9-8.4	1-5	0	4.0-8.0	0
	40-60	10-35	7.9-8.4	1-5	0	4.0-8.0	0
128:							
Stephouse-----	0-1	3.0-10	7.9-8.4	10-30	0	0	0
	1-12	1.0-10	7.9-8.4	10-40	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
129:							
Torriorthents-----	0-4	5.0-15	6.6-9.0	1-10	0	0.0-8.0	0-5
	4-14	10-20	6.6-9.0	1-15	0-3	0.0-8.0	0-10
	14-24	---	6.6-9.0	---	---	---	---
130:							
Torriorthents-----	0-4	20-35	7.4-8.4	0-5	0	2.0-4.0	0
	4-14	20-40	7.4-8.4	0-5	0	0.0-2.0	0
	14-24	---	---	---	---	---	---
Badland-----	0-60	---	---	---	---	0	---
131:							
Tragmon-----	0-5	10-20	6.1-7.8	0	0	0	0
	5-11	10-25	6.6-7.8	0	0	0	0
	11-40	10-25	6.6-8.4	0	0	0	0
	40-60	10-25	6.6-8.4	0-1	0	0	0
Sheek-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-16	15-25	6.1-7.8	0	0	0	0
	16-42	15-25	6.1-7.8	0	0	0	0
	42-60	10-25	6.6-8.4	0-10	0	0	0
132:							
Typic Argiaquolls-----	0-4	10-25	7.4-7.8	0	0	0	0
	4-10	10-30	7.4-7.8	0	0	0	0
	10-24	15-30	7.4-7.8	0	0	0	0
	24-60	10-20	7.9-8.4	0	0	0	0
133:							
Typic Torriorthents-----	0-3	5.0-15	7.4-9.4	1-10	0	0.0-8.0	0-5
	3-16	10-20	7.4-9.4	1-15	0-2	0.0-8.0	0-10
	16-26	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
134:							
Umbarg-----	0-2	10-25	6.6-8.4	0-5	0	0	0
	2-5	20-30	6.6-8.4	0-5	0	0	0
	5-12	20-30	6.6-8.4	0-5	0	0	0
	12-42	10-20	6.6-8.4	0-5	0	0	0
	42-60	10-20	6.6-8.4	0-5	0	0	0
Winner-----	0-4	15-30	7.4-8.4	0	0	0	0
	4-31	15-30	7.4-8.4	0-2	0-1	2.0-8.0	0
	31-60	10-20	7.4-8.4	0-2	0-1	0.0-4.0	0
Tesajo-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-36	10-20	6.6-7.3	0	0	0	0
	36-60	5.0-15	6.6-7.3	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
135:							
Ustic Torrifuvents-----	0-3	0.0-10	6.6-8.4	1-5	0	2.0-8.0	0
	3-11	0.0-10	6.6-8.4	1-5	0	2.0-8.0	0
	11-60	0.0-10	6.6-8.4	1-5	0	2.0-8.0	0
136:							
Ustic Torriorthents-----	0-7	5.0-20	7.4-8.4	0-10	0	0.0-2.0	0
	7-60	10-25	7.4-8.4	1-5	0-5	0.0-2.0	0
Gullied land-----	0-60	---	---	---	---	---	---
137:							
Ustorthents-----	0-3	5.0-15	6.6-8.4	0-5	0	0.0-8.0	0-2
	3-14	5.0-10	6.6-8.4	0-10	0	0.0-8.0	0-2
	14-60	10-20	6.6-8.4	1-15	0-3	0.0-8.0	0-10
138:							
Uzacol-----	0-5	20-30	7.4-8.4	1-5	0	2.0-4.0	0-10
	5-45	20-50	7.9-9.0	1-15	0-5	4.0-16.0	15-50
	45-59	20-45	7.9-9.0	1-15	0-15	4.0-16.0	15-50
	59-69	---	---	---	---	---	---
Zwicker-----	0-1	25-45	7.4-9.0	1-5	0	2.0-4.0	0-5
	1-4	20-40	7.4-9.0	1-5	0	2.0-4.0	0-5
	4-32	20-45	7.4-9.0	5-10	1-10	2.0-4.0	0-5
	32-42	---	---	---	---	---	---
Claysprings-----	0-3	10-35	7.9-9.2	1-15	0-5	0.0-4.0	0-10
	3-18	20-40	7.9-9.2	1-15	0-10	0.0-4.0	0-20
	18-28	---	---	---	---	---	---
139:							
Water-----	0-60	---	---	---	---	---	---
140:							
Wauquie-----	0-2	10-20	6.6-7.8	0-2	0	0	0
	2-20	5.0-20	7.4-8.4	1-5	0	0	0
	20-60	5.0-15	7.4-8.4	1-10	0	0	0
141:							
Wauquie-----	0-2	5.0-15	6.6-7.8	0-2	0	0	0
	2-6	5.0-20	6.6-7.8	0-5	0	0	0
	6-22	10-25	7.4-8.4	0-5	0	0	0
	22-60	10-25	7.4-8.4	1-10	0	0	0
Dolcan-----	0-2	5.0-15	7.4-7.8	0-2	0	0	0
	2-11	10-20	7.4-8.4	0-5	0	0	0
	11-21	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
142:							
Wauquie-----	0-2	5.0-15	6.6-7.8	0-2	0	0	0
	2-6	5.0-20	6.6-7.8	0-5	0	0	0
	6-22	10-25	7.4-8.4	0-5	0	0	0
	22-60	10-25	7.4-8.4	1-10	0	0	0
Dolcan-----	0-2	5.0-15	7.4-7.8	0-2	0	0	0
	2-11	10-20	7.4-8.4	0-5	0	0	0
	11-21	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
143:							
Wetherill-----	0-3	5.0-20	6.6-7.8	0-1	0	0	0
	3-7	10-25	6.6-7.8	0-1	0	0	0
	7-48	5.0-20	7.4-8.4	1-10	0	0	0
	48-60	5.0-15	7.9-8.4	5-30	0	0.0-2.0	0-4
144:							
Wetherill-----	0-3	5.0-20	6.6-7.8	0-1	0	0	0
	3-7	10-25	6.6-7.8	0-1	0	0	0
	7-48	5.0-20	7.4-8.4	1-10	0	0	0
	48-60	5.0-15	7.9-8.4	5-30	0	0.0-2.0	0-4
145:							
Wetherill-----	0-3	5.0-20	6.6-7.8	0-1	0	0	0
	3-7	10-25	6.6-7.8	0-1	0	0	0
	7-48	5.0-20	7.4-8.4	1-10	0	0	0
	48-60	5.0-15	7.9-8.4	5-30	0	0.0-2.0	0-4
146:							
Yarts-----	0-9	10-25	7.4-8.4	1-5	0	0	0
	9-13	3.0-15	7.4-8.4	1-5	0	0	0
	13-60	5.0-10	7.4-9.0	1-5	0	0	0
147:							
Yarts-----	0-9	5.0-15	7.4-8.4	1-5	0	0	0
	9-13	3.0-15	7.4-8.4	1-5	0	0	0
	13-60	5.0-10	7.4-9.0	1-5	0	0	0
148:							
Zau-----	0-2	---	---	---	---	---	---
	2-10	10-20	6.6-7.8	0	0	0	0
	10-29	15-30	6.1-7.3	0	0	0	0
	29-34	10-25	6.1-7.8	0-5	0	0	0
	34-44	---	---	---	---	---	---

Table 17.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
1:					
Ackmen-----	B	March	---	Brief	Rare
		April	---	Brief	Rare
		July	---	Very brief	Rare
		August	---	Very brief	Rare
		September	---	Very brief	Rare
		October	---	Very brief	Rare
2:					
Ackmen-----	B	March	---	Brief	Rare
		April	---	Brief	Rare
		July	---	Very brief	Rare
		August	---	Very brief	Rare
		September	---	Very brief	Rare
		October	---	Very brief	Rare
3:					
Arabrab-----	D	All months	---	---	---
4:					
Arabrab-----	D	All months	---	---	---
Longburn-----	D	All months	---	---	---
5:					
Archuleta-----	D	All months	---	---	---
Sanchez-----	D	All months	---	---	---
6:					
Argiustolls-----	B	All months	---	---	---
Haplustalfs-----	C	All months	---	---	---
7:					
Argiustolls-----	B	All months	---	---	---
Haplustalfs-----	C	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
8:					
Barx-----	B	All months	---	---	---
9:					
Barx-----	B	All months	---	---	---
10:					
Barx-----	B	All months	---	---	---
11:					
Barx-----	B	All months	---	---	---
Gapmesa-----	C	All months	---	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
12: Battlerock-----	B	July August September October	--- --- --- ---	Very brief Very brief Very brief Very brief	Rare Rare Rare Rare
13: Beje-----	D	All months	---	---	---
Tragmon-----	B	All months	---	---	---
14: Burnson-----	C	All months	---	---	---
15: Burnson, dry-----	C	All months	---	---	---
16: Burnson-----	C	All months	---	---	---
Herm-----	C	All months	---	---	---
17: Cahona-----	B	All months	---	---	---
18: Cahona-----	B	All months	---	---	---
19: Cahona-----	B	All months	---	---	---
20: Cahona-----	B	All months	---	---	---
Pulpit-----	C	All months	---	---	---
21: Cahona-----	B	All months	---	---	---
Sharps-----	C	All months	---	---	---
Wetherill-----	B	All months	---	---	---
22: Claysprings-----	D	All months	---	---	---
23: Collide-----	C	All months	---	---	---
24: Collide-----	C	All months	---	---	---
25: Collide-----	C	All months	---	---	---
Collide, cobbly substratum---	C	All months	---	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
26:					
Collide-----	C	All months	---	---	---
Collide, cobbly substratum---	C	All months	---	---	---
27:					
Dalmatian-----	B	January	5.0-6.0	---	---
		February	5.0-6.0	---	---
		March	4.0-6.0	Brief	Rare
		April	3.0-5.0	Brief	Rare
		May	3.0-5.0	Brief	Rare
		June	3.0-5.0	Brief	Rare
		July	3.0-5.0	---	---
		August	4.0-6.0	---	---
		September	4.0-6.0	---	---
		November	5.0-6.0	---	---
		December	5.0-6.0	---	---
Apmay-----	B	January	5.0-6.0	---	---
		February	5.0-6.0	---	---
		March	3.0-5.0	Brief	Rare
		April	2.0-4.0	Brief	Rare
		May	1.0-3.0	Brief	Rare
		June	1.0-3.0	Brief	Rare
		July	2.0-4.0	---	---
		August	3.0-5.0	---	---
		September	4.0-6.0	---	---
		October	5.0-6.0	---	---
		November	5.0-6.0	---	---
		December	5.0-6.0	---	---
Schrader-----	D	January	5.0-6.0	---	---
		February	5.0-6.0	---	---
		March	3.0-4.0	Brief	Occasional
		April	2.0-3.0	Brief	Occasional
		May	1.0-2.0	Brief	Occasional
		June	1.0-2.0	Brief	Occasional
		July	2.0-3.0	---	---
		August	3.0-4.0	---	---
		September	4.0-5.0	---	---
		October	5.0-6.0	---	---
		November	5.0-6.0	---	---
		December	5.0-6.0	---	---
28:					
Dam-----	---	All months	---	---	---
29:					
Endoaquolls-----	D	January	3.0-5.0	---	---
		February	3.0-5.0	---	---
		March	3.0-5.0	---	---
		April	2.0-4.0	Long	Frequent
		May	1.0-2.0	Long	Frequent
		June	1.0-2.0	Long	Frequent
		July	2.0-3.0	---	---
		August	2.0-3.0	---	---
		September	3.0-4.0	---	---
		October	3.0-5.0	---	---
		November	3.0-5.0	---	---
		December	3.0-5.0	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
29: Ustifluvents-----	B	January	5.0-6.0	---	---
		February	5.0-6.0	---	---
		March	4.0-6.0	---	---
		April	3.0-5.0	Brief	Occasional
		May	3.0-5.0	Brief	Occasional
		June	3.0-5.0	Brief	Occasional
		July	4.0-5.0	---	---
		August	4.0-6.0	---	---
		September	5.0-6.0	---	---
		October	5.0-6.0	---	---
		November	5.0-6.0	---	---
		December	5.0-6.0	---	---
30: Falconry-----	D	All months	---	---	---
31: Farb-----	D	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
32: Fardraw-----	B	All months	---	---	---
33: Fardraw-----	C	All months	---	---	---
34: Fardraw-----	C	All months	---	---	---
35: Fardraw-----	C	All months	---	---	---
Granath-----	B	All months	---	---	---
36: Fivepine-----		All months	---	---	---
Nortez-----	C	All months	---	---	---
37: Fluvaquents-----	D	January	1.0-3.0	---	---
		February	1.0-3.0	---	---
		March	1.0-3.0	Brief	Frequent
		April	1.0-3.0	Brief	Frequent
		May	1.0-2.0	Brief	Frequent
		June	1.0-2.0	Brief	Frequent
		July	1.0-3.0	---	---
		August	1.0-3.0	---	---
		September	1.0-3.0	---	---
		October	1.0-3.0	---	---
		November	1.0-3.0	---	---
		December	1.0-3.0	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
37: Haplustolls-----	B	March	---	Brief	Rare
		April	---	Brief	Rare
		May	---	Brief	Rare
		June	---	Brief	Rare
38: Fluvents-----	A	March	---	Brief	Occasional
		April	---	Brief	Occasional
		May	---	Brief	Occasional
		June	---	Brief	Occasional
		July	---	Brief	Occasional
		August	---	Brief	Occasional
Fluvaquents-----	D	January	1.0-3.0	---	---
		February	1.0-3.0	---	---
		March	1.0-3.0	Brief	Frequent
		April	1.0-3.0	Brief	Frequent
		May	1.0-3.0	Brief	Frequent
		June	1.0-3.0	Brief	Frequent
		July	1.0-3.0	---	---
		August	1.0-3.0	---	---
		September	1.0-3.0	---	---
		October	1.0-3.0	---	---
		November	1.0-3.0	---	---
		December	1.0-3.0	---	---
39: Fughes-----	C	All months	---	---	---
40: Fughes-----	C	All months	---	---	---
Herm-----	C	All months	---	---	---
41: Fughes-----	C	All months	---	---	---
Sheek-----	B	All months	---	---	---
42: Gladel-----	D	All months	---	---	---
Pulpit-----	C	All months	---	---	---
43: Goldbug-----	B	All months	---	---	---
44: Granath-----	B	All months	---	---	---
45: Granath-----	B	All months	---	---	---
46: Granath-----	C	All months	---	---	---
Fughes-----	C	All months	---	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
47:					
Granath-----	C	All months	---	---	---
Nortez-----	C	All months	---	---	---
48:					
Granath-----	C	All months	---	---	---
Ormiston-----	C	All months	---	---	---
Fivepine-----	D	All months	---	---	---
49:					
Herm-----	C	All months	---	---	---
50:					
Herm-----	C	All months	---	---	---
51:					
Herm-----	C	All months	---	---	---
Pagoda-----	C	All months	---	---	---
52:					
Hesperus-----	B	All months	---	---	---
53:					
Hesperus-----	B	All months	---	---	---
54:					
Hesperus-----	B	All months	---	---	---
55:					
Hesperus-----	B	All months	---	---	---
56:					
Ilex-----	C	All months	---	---	---
57:					
Ilex-----	C	All months	---	---	---
58:					
Ilex-----	C	All months	---	---	---
Granath-----	B	All months	---	---	---
59:					
Ilex-----	C	All months	---	---	---
Granath-----	B	All months	---	---	---
60:					
Ilex-----	C	All months	---	---	---
Pramiss-----	C	All months	---	---	---
Falconry-----	D	All months	---	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
61:					
Ilex-----	C	All months	---	---	---
Pramiss-----	C	All months	---	---	---
Granath-----	B	All months	---	---	---
62:					
Irak-----	D	January	5.0-6.0	---	---
		February	5.0-6.0	---	---
		March	3.0-5.0	Brief	Rare
		April	2.0-4.0	Brief	Rare
		May	2.0-4.0	---	---
		June	2.0-4.0	---	---
		July	2.0-4.0	Brief	Rare
		August	2.0-4.0	Very brief	Rare
		September	2.0-4.0	Very brief	Rare
		October	3.0-5.0	Brief	Rare
		November	4.0-6.0	---	---
		December	5.0-6.0	---	---
63:					
Jemco-----	C	All months	---	---	---
Detra-----	B	All months	---	---	---
Beje-----	D	All months	---	---	---
64:					
Lazear-----	D	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
65:					
Lillings-----	B	March	---	Brief	Rare
		April	---	Brief	Rare
		July	---	Brief	Rare
		August	---	Brief	Rare
		September	---	Very brief	Rare
		October	---	Brief	Rare
66:					
Lillings-----	B	March	---	Brief	Rare
		April	---	Brief	Rare
		July	---	Brief	Rare
		August	---	Brief	Rare
		September	---	Very brief	Rare
		October	---	Brief	Rare
67:					
Lillings-----	B	March	---	Brief	Rare
		April	---	Brief	Rare
		July	---	Brief	Rare
		August	---	Brief	Rare
		September	---	Very brief	Rare
		October	---	Brief	Rare

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
68:					
Longburn-----	D	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
69:					
Longburn-----	D	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
70:					
Mack-----	B	All months	---	---	---
71:					
Mikett-----	D	January	1.0-3.0	---	---
		February	1.0-3.0	---	---
		March	1.0-3.0	---	---
		April	1.0-3.0	---	---
		May	1.0-3.0	---	---
		June	1.0-3.0	---	---
		July	1.0-3.0	---	---
		August	1.0-3.0	---	---
		September	1.0-3.0	---	---
		October	1.0-3.0	---	---
		November	1.0-3.0	---	---
		December	1.0-3.0	---	---
72:					
Mikett-----	C	January	4.0-6.0	---	---
		February	4.0-6.0	---	---
		March	4.0-6.0	---	---
		April	3.0-5.0	---	---
		May	3.0-5.0	---	---
		June	3.0-5.0	---	---
		July	3.0-5.0	---	---
		August	3.0-5.0	---	---
		September	4.0-6.0	---	---
		October	4.0-6.0	---	---
		November	4.0-6.0	---	---
		December	4.0-6.0	---	---
73:					
Mikim-----	B	All months	---	---	---
74:					
Mikim-----	B	All months	---	---	---
75:					
Mikim-----	B	All months	---	---	---
76:					
Morefield-----	B	All months	---	---	---
77:					
Morefield-----	B	All months	---	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
78:					
Nortez-----	C	All months	---	---	---
Granath-----	B	All months	---	---	---
79:					
Northrim-----	B	All months	---	---	---
80:					
Ormiston-----	C	All months	---	---	---
Beje-----	D	All months	---	---	---
81:					
Ormiston-----	C	All months	---	---	---
Fivepine-----	D	All months	---	---	---
82:					
Ormiston-----	C	All months	---	---	---
Granath-----	B	All months	---	---	---
83:					
Ormiston-----	C	All months	---	---	---
Nortez-----	C	All months	---	---	---
84:					
Payter-----	B	All months	---	---	---
85:					
Pinacol-----	C	All months	---	---	---
86:					
Pinacol-----	C	All months	---	---	---
87:					
Pits-----	A	All months	---	---	---
88:					
Pogo-----	D	January	0.0-1.5	Very long	Frequent
		February	0.0-1.5	Very long	Frequent
		March	0.0-1.5	Very long	Frequent
		April	0.0-1.5	Very long	Frequent
		May	0.0-1.5	Very long	Frequent
		June	0.0-1.5	Very long	Frequent
		July	0.0-1.5	Very long	Frequent
		August	0.0-1.5	Very long	Frequent
		September	0.0-1.5	Very long	Frequent
		October	0.0-1.5	Very long	Frequent
		November	0.0-1.5	Very long	Frequent
		December	0.0-1.5	Very long	Frequent

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
89: Pramiss-----	C	All months	---	---	---
90: Pramiss-----	C	All months	---	---	---
Granath-----	B	All months	---	---	---
91: Prater-----	B	All months	---	---	---
92: Prater-----	B	All months	---	---	---
Dolcan-----	D	All months	---	---	---
93: Pulpit-----	C	All months	---	---	---
94: Pulpit-----	C	All months	---	---	---
95: Pulpit-----	C	All months	---	---	---
96: Purcella-----	B	All months	---	---	---
97: Ramper-----	B	March April July August September October	--- --- --- --- --- ---	Brief Brief Brief Brief Brief Brief	Rare Rare Rare Rare Rare Rare
98: Ramper-----	B	March April July August September October	--- --- --- --- --- ---	Brief Brief Brief Brief Brief Brief	Rare Rare Rare Rare Rare Rare
99: Ravola-----	B	July August September October	--- --- --- ---	Brief Brief Brief Brief	Rare Rare Rare Rare
100: Recapture-----	B	All months	---	---	---
101: Recapture-----	B	July August September October	--- --- --- ---	Brief Brief Brief Brief	Rare Rare Rare Rare

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
102: Ricot-----	C	All months	---	---	---
103: Ricot-----	C	All months	---	---	---
104: Ricot-----	C	All months	---	---	---
105: Rizno-----	D	All months	---	---	---
Gapmesa-----	C	All months	---	---	---
106: Rizno-----	D	All months	---	---	---
Littlenan-----	C	All months	---	---	---
Bodry-----	C	All months	---	---	---
107: Rizno-----	D	All months	---	---	---
Ruinpoint-----	B	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
108: Rock outcrop-----	D	All months	---	---	---
109: Romberg-----	B	All months	---	---	---
109: Crosscan-----	D	All months	---	---	---
110: Romberg-----	B	All months	---	---	---
Crosscan-----	D	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
111: Roubideau-----	C	All months	---	---	---
112: Sharps-----	C	All months	---	---	---
113: Sharps-----	C	All months	---	---	---
114: Sharps, dry-----	C	All months	---	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
115: Sharps, dry-----	C	All months	---	---	---
Gapmesa-----	C	All months	---	---	---
116: Sharps-----	C	All months	---	---	---
Cahona-----	B	All months	---	---	---
117: Sharps-----	C	All months	---	---	---
Pulpit-----	C	All months	---	---	---
118: Sharps-----	C	All months	---	---	---
Pulpit-----	C	All months	---	---	---
119: Sheek-----	B	All months	---	---	---
Archuleta-----	D	All months	---	---	---
120: Sheek-----	B	All months	---	---	---
Archuleta-----	D	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
121: Sheek-----	B	All months	---	---	---
Archuleta-----	D	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
122: Sheppard-----	A	All months	---	---	---
123: Sideshow-----	C	All months	---	---	---
124: Sideshow-----	C	All months	---	---	---
125: Sideshow-----	C	All months	---	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
126: Sideshow-----	C	All months	---	---	---
Zigzag-----	D	All months	---	---	---
127: Sideslide-----	C	January	3.0-5.0	---	---
		February	3.0-5.0	---	---
		March	3.0-5.0	---	---
		April	1.0-2.0	---	---
		May	0.5-2.0	---	---
		June	0.5-2.0	---	---
		July	0.5-2.0	---	---
		August	0.5-2.0	---	---
		September	0.5-2.0	---	---
		October	2.0-4.0	---	---
		November	3.0-5.0	---	---
		December	3.0-5.0	---	---
128: Stephouse-----	D	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
129: Torriorthents-----	D	All months	---	---	---
130: Torriorthents-----	D	All months	---	---	---
Badland-----	D	All months	---	---	---
131: Tragmon-----	B	All months	---	---	---
Sheek-----	B	All months	---	---	---
132: Typic Argiaquolls-----	C	January	4.0-6.0	---	---
		February	3.0-6.0	---	---
		March	1.0-3.0	Long	Occasional
		April	1.0-2.0	Long	Occasional
		May	1.0-2.0	Long	Occasional
		June	1.0-2.0	---	---
		July	2.0-3.0	Very brief	Rare
		August	2.0-3.0	Very brief	Rare
		September	3.0-5.0	Very brief	Rare
		October	3.0-6.0	Very brief	Rare
		November	4.0-6.0	---	---
		December	4.0-6.0	---	---
133: Typic Torriorthents-----	D	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
134: Umbarg-----	C	January	5.0-6.0	---	---
		February	5.0-6.0	---	---
		March	4.0-6.0	Brief	Rare
		April	3.0-5.0	Brief	Rare
		May	3.0-5.0	Brief	Rare
		June	3.0-5.0	---	---
		July	3.0-5.0	Very brief	Rare
		August	3.0-5.0	Very brief	Rare
		September	3.0-5.0	Very brief	Rare
		October	4.0-6.0	Very brief	Rare
		November	4.0-6.0	---	---
		December	5.0-6.0	---	---
Winner-----	D	January	4.0-6.0	---	---
		February	4.0-6.0	---	---
		March	3.0-5.0	Brief	Rare
		April	0.5-2.0	Brief	Rare
		May	0.5-2.0	Brief	Rare
		June	0.5-2.0	---	---
		July	1.0-3.0	Very brief	Rare
		August	1.0-3.0	Very brief	Rare
		September	2.0-4.0	Very brief	Rare
		October	2.0-4.0	Very brief	Rare
		November	4.0-5.0	---	---
		December	4.0-6.0	---	---
Tesajo-----	B	January	5.0-6.0	---	---
		February	5.0-6.0	---	---
		March	4.0-6.0	Brief	Rare
		April	4.0-6.0	Brief	Rare
		May	4.0-6.0	Brief	Rare
		June	4.0-6.0	---	---
		July	4.0-6.0	Very brief	Rare
		August	4.0-6.0	Very brief	Rare
		September	4.0-6.0	Very brief	Rare
		October	4.0-6.0	Very brief	Rare
		November	5.0-6.0	---	---
		December	5.0-6.0	---	---
135: Ustic Torrifluvents-----	A	March	---	Brief	Rare
		April	---	Brief	Rare
		May	---	Brief	Rare
		July	---	Very brief	Rare
		August	---	Very brief	Rare
		September	---	Very brief	Rare
		October	---	Very brief	Rare
136: Ustic Torriorthents-----	D	March	---	Brief	Rare
		April	---	Brief	Rare
		July	---	Brief	Rare
		August	---	Brief	Rare
		September	---	Brief	Rare
		October	---	Brief	Rare

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
136: Gullied land-----	---	March April July August September October	--- --- --- --- --- ---	Brief Brief Brief Brief Brief Brief	Rare Rare Rare Rare Rare Rare
137: Ustorthents-----	D	All months	---	---	---
138: Uzacol-----	D	All months	---	---	---
Zwicker-----	C	All months	---	---	---
Claysprings-----	D	All months	---	---	---
139: Water-----	---	All months	---	---	---
140: Wauquie-----	B	All months	---	---	---
141: Wauquie-----	B	All months	---	---	---
Dolcan-----	D	All months	---	---	---
142: Wauquie-----	B	All months	---	---	---
Dolcan-----	D	All months	---	---	---
Rock outcrop-----	D	All months	---	---	---
143: Wetherill-----	B	All months	---	---	---
144: Wetherill-----	B	All months	---	---	---
145: Wetherill-----	B	All months	---	---	---
146: Yarts-----	B	All months	---	---	---
147: Yarts-----	B	All months	---	---	---
148: Zau-----	C	All months	---	---	---
149: Zigzag-----	D	All months	---	---	---

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table upper limit	Flooding	
				Duration	Frequency
150: Zigzag-----	D	All months	---	---	---
Sideshow-----	C	All months	---	---	---
151: Zyme-----	D	All months	---	---	---
152: Zyme-----	D	All months	---	---	---

Table 18.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
1: Ackmen-----	---	---	Low	Moderate	Low
2: Ackmen-----	---	---	Low	Moderate	Low
3: Arabrab-----	Bedrock (lithic)	6-20	Moderate	High	Low
4: Arabrab-----	Bedrock (lithic)	6-20	Moderate	High	Low
Longburn-----	Bedrock (lithic)	6-20	Moderate	High	Low
5: Archuleta-----	Bedrock (paralithic)	10-20	Low	Moderate	Low
Sanchez-----	Bedrock (lithic)	11-20	Low	Moderate	Moderate
6: Argiustolls-----	Bedrock (paralithic)	20-80	Low	Moderate	Low
Haplustalfs-----	Bedrock (paralithic)	10-80	Low	High	Low
7: Argiustolls-----	Bedrock (paralithic)	20-80	Low	Moderate	Low
Haplustalfs-----	Bedrock (paralithic)	10-80	Low	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
8: Barx-----	---	---	Moderate	Low	Low
9: Barx-----	---	---	Moderate	Low	Low
10: Barx-----	---	---	Moderate	High	Low
11: Barx-----	---	---	Moderate	Low	Low
Gapmesa-----	Bedrock (lithic)	20-40	Low	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
12: Battlerock-----	---	---	Low	High	Low
13: Beje-----	Bedrock (lithic)	10-20	Moderate	Moderate	Low
Tragmon-----	---	---	Moderate	Moderate	Low
14: Burnson-----	Bedrock (lithic)	40-60	Moderate	Moderate	Low
15: Burnson, dry-----	Bedrock (lithic)	40-60	Moderate	Moderate	Low
16: Burnson-----	Bedrock (lithic)	40-60	Moderate	Moderate	Low
Herm-----	---	---	Low	Moderate	Low
17: Cahona-----	---	---	Moderate	High	Low
18: Cahona-----	---	---	Moderate	High	Low
19: Cahona-----	---	---	Moderate	High	Low
20: Cahona-----	---	---	Moderate	High	Low
Pulpit-----	Bedrock (lithic)	20-40	Low	Moderate	Low
21: Cahona-----	---	---	Moderate	High	Low
Sharps-----	Bedrock (paralithic)	20-40	Low	High	Low
Wetherill-----	---	---	Moderate	High	Low
22: Claysprings-----	Bedrock (paralithic)	6-20	Low	High	High
23: Collide-----	---	---	Low	High	Low
24: Collide-----	---	---	Low	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
25: Collide-----	---	---	Low	High	Low
Collide, cobbly substratum-----	---	---	Low	High	Low
26: Collide-----	---	---	Low	High	Low
Collide, cobbly substratum-----	---	---	Low	High	Low
27: Dalmatian-----	---	---	Moderate	Moderate	Low
Apmay-----	---	---	Moderate	Moderate	Low
Schrader-----	---	---	High	High	Low
28: Dam-----	---	---	---	---	---
29: Endoaquolls-----	---	---	Low	Moderate	Low
Ustifluvents-----	---	---	Low	Moderate	Low
30: Falconry-----	Bedrock (lithic)	10-20	Low	Low	Low
31: Farb-----	Bedrock (lithic)	5-20	Low	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
32: Fardraw-----	---	---	Low	Moderate	Low
33: Fardraw-----	---	---	Low	Moderate	Low
34: Fardraw-----	---	---	Low	Moderate	Low
35: Fardraw-----	---	---	Low	Moderate	Low
Granath-----	---	---	Moderate	High	Low
36: Fivepine-----	Bedrock (lithic)	10-20	Low	Moderate	Low
Nortez-----	Bedrock (lithic)	20-40	Low	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
37: Fluvaquents-----	---	---	Moderate	Moderate	Low
Haplustolls-----	---	---	Low	Moderate	Low
38: Fluvents-----	---	---	Low	Moderate	Low
Fluvaquents-----	---	---	Moderate	Moderate	Low
39: Fughes-----	---	---	Moderate	High	Low
40: Fughes-----	---	---	Low	Moderate	Low
Herm-----	---	---	Low	Moderate	Low
41: Fughes-----	---	---	Low	Moderate	Low
Sheek-----	---	---	Low	High	Low
42: Gladel-----	Bedrock (lithic)	12-20	Low	Moderate	Low
Pulpit-----	Bedrock (lithic)	20-40	Low	Moderate	Low
43: Goldbug-----	---	---	Low	Moderate	Moderate
44: Granath-----	---	---	Moderate	High	Low
45: Granath-----	---	---	Moderate	High	Low
46: Granath-----	---	---	Moderate	High	Low
Fughes-----	---	---	Low	Moderate	Low
47: Granath-----	---	---	Moderate	High	Low
Nortez-----	Bedrock (lithic)	20-40	Low	Moderate	Low
48: Granath-----	---	---	Moderate	High	Low
Ormiston-----	Bedrock (lithic)	40-60	Low	High	Low
Fivepine-----	Bedrock (lithic)	10-20	Low	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
49: Herm-----	---	---	Low	Moderate	Low
50: Herm-----	---	---	Low	Low	Moderate
51: Herm-----	---	---	Low	Moderate	Low
Pagoda-----	---	---	Low	High	Low
52: Hesperus-----	---	---	Moderate	Moderate	Low
53: Hesperus-----	---	---	Moderate	Moderate	Low
54: Hesperus-----	---	---	Moderate	Moderate	Low
55: Hesperus-----	---	---	Moderate	Moderate	Low
56: Ilex-----	---	---	Low	Moderate	Low
57: Ilex-----	---	---	Low	Moderate	Low
58: Ilex-----	---	---	Low	Moderate	Low
Granath-----	---	---	Moderate	High	Low
59: Ilex-----	---	---	Low	Moderate	Low
Granath-----	---	---	Moderate	High	Low
60: Ilex-----	---	---	Low	Moderate	Low
Pramiss-----	Bedrock (paralithic)	20-40	Low	High	Low
Falconry-----	Bedrock (lithic)	10-20	Low	Low	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
61: Ilex-----	---	---	Low	Moderate	Low
Pramiss-----	Bedrock (paralithic)	20-40	Low	High	Low
Granath-----	---	---	Moderate	High	Low
62: Irak-----	---	---	Moderate	High	Low
63: Jemco-----	Bedrock (lithic)	20-40	Moderate	Moderate	Low
Detra-----	Bedrock (lithic)	40-60	Moderate	Moderate	Low
Beje-----	Bedrock (lithic)	10-20	Moderate	Moderate	Low
64: Lazear-----	Bedrock (lithic)	10-20	Low	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
65: Lillings-----	---	---	Low	High	High
66: Lillings-----	---	---	Low	High	High
67: Lillings-----	---	---	Low	High	High
68: Longburn-----	Bedrock (lithic)	6-20	Moderate	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
69: Longburn-----	Bedrock (lithic)	6-20	Moderate	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
70: Mack-----	---	---	Low	High	Moderate
71: Mikett-----	---	---	Moderate	High	High
72: Mikett-----	---	---	Moderate	High	Moderate
73: Mikim-----	---	---	Low	High	Moderate

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
74: Mikim-----	---	---	Low	High	High
75: Mikim-----	---	---	Low	High	Moderate
76: Morefield-----	---	---	Moderate	Moderate	Low
77: Morefield-----	---	---	Moderate	Moderate	Low
78: Nortez-----	Bedrock (lithic)	20-40	Low	Moderate	Low
Granath-----	---	---	Moderate	High	Low
79: Northrim-----	---	---	Moderate	Moderate	Low
80: Ormiston-----	Bedrock (lithic)	40-60	Low	High	Low
Beje-----	Bedrock (lithic)	10-20	Moderate	Moderate	Low
81: Ormiston-----	Bedrock (lithic)	40-60	Low	High	Low
Fivepine-----	Bedrock (lithic)	10-20	Low	Moderate	Low
82: Ormiston-----	Bedrock (lithic)	40-60	Low	High	Low
Granath-----	---	---	Moderate	High	Low
83: Ormiston-----	Bedrock (lithic)	40-60	Low	High	Low
Nortez-----	Bedrock (lithic)	20-40	Low	Moderate	Low
84: Payter-----	---	---	Moderate	High	Low
85: Pinacol-----	---	---	Moderate	Moderate	Low
86: Pinacol-----	---	---	Moderate	Moderate	Low
87: Pits-----	---	---	None	---	---

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
88: Pogo-----	---	---	High	High	High
89: Pramiss-----	Bedrock (paralithic)	20-40	Low	High	Low
90: Pramiss-----	Bedrock (paralithic)	20-40	Low	High	Low
Granath-----	---	---	Moderate	High	Low
91: Prater-----	---	---	Moderate	High	Low
92: Prater-----	---	---	Moderate	High	Low
Dolcan-----	Bedrock (paralithic)	6-20	Low	Low	Low
93: Pulpit-----	Bedrock (lithic)	20-40	Low	High	Low
94: Pulpit-----	Bedrock (lithic)	20-40	Low	Moderate	Low
95: Pulpit-----	Bedrock (lithic)	20-40	Low	Moderate	Low
96: Purcella-----	---	---	Moderate	High	Low
97: Ramper-----	---	---	Low	Moderate	Low
98: Ramper-----	---	---	Low	Moderate	Low
99: Ravola-----	---	---	Low	High	High
100: Recapture-----	---	---	Low	High	Moderate
101: Recapture-----	---	---	Low	High	High
102: Ricot-----	---	---	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
103: Ricot-----	---	---	Moderate	High	Low
104: Ricot-----	---	---	Moderate	High	Low
105: Rizno-----	Bedrock (lithic)	6-20	Low	Low	Low
Gapmesa-----	Bedrock (lithic)	20-40	Low	Moderate	Low
106: Rizno-----	Bedrock (lithic)	4-20	Low	High	Moderate
Littlenan-----	Bedrock (paralithic)	20-40	Low	High	Moderate
Bodry-----	Bedrock (paralithic)	20-40	Low	High	Moderate
107: Rizno-----	Bedrock (lithic)	4-20	Low	High	Moderate
Ruinpoint-----	---	---	Moderate	High	Moderate
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
108: Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
109: Romberg-----	---	---	Moderate	High	Low
Crosscan-----	Bedrock (paralithic)	6-20	Low	High	Low
110: Romberg-----	---	---	Moderate	High	Low
Crosscan-----	Bedrock (paralithic)	6-20	Low	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
111: Roubideau-----	Bedrock (lithic)	20-40	Low	High	Low
112: Sharps-----	Bedrock (paralithic)	20-40	Low	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
113: Sharps-----	Bedrock (paralithic)	20-40	Low	High	Low
114: Sharps, dry-----	Bedrock (paralithic)	20-40	Low	High	Low
115: Sharps, dry-----	Bedrock (paralithic)	20-40	Low	High	Low
Gapmesa-----	Bedrock (lithic)	20-40	Low	Moderate	Low
116: Sharps-----	Bedrock (paralithic)	20-40	Low	High	Low
Cahona-----	---	---	Moderate	High	Low
117: Sharps-----	Bedrock (paralithic)	20-40	Low	High	Low
Pulpit-----	Bedrock (lithic)	20-40	Low	Moderate	Low
118: Sharps-----	Bedrock (paralithic)	20-40	Low	High	Low
Pulpit-----	Bedrock (lithic)	20-40	Low	Moderate	Low
119: Sheek-----	---	---	Low	Moderate	Low
Archuleta-----	Bedrock (paralithic)	10-20	Low	Moderate	Low
120: Sheek-----	---	---	Low	Moderate	Low
Archuleta-----	Bedrock (paralithic)	10-20	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
121: Sheek-----	---	---	Low	Moderate	Low
Archuleta-----	Bedrock (paralithic)	10-20	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
122: Sheppard-----	---	---	Low	High	Low
123: Sideshow-----	---	---	Low	High	Low
124: Sideshow-----	---	---	Low	High	Low
125: Sideshow-----	---	---	Low	High	Low
126: Sideshow-----	---	---	Low	High	Low
Zigzag-----	Bedrock (paralithic)	6-20	Low	High	Low
127: Sideslide-----	---	---	High	High	High
128: Stephouse-----	Bedrock (lithic)	6-20	Low	Low	High
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
129: Torriorthents-----	Bedrock (paralithic)	6-80	Low	High	Moderate
130: Torriorthents-----	Bedrock (paralithic)	6-80	Low	High	Moderate
Badland-----	Bedrock (paralithic)	0-3	None	---	---
131: Tragmon-----	---	---	Moderate	Moderate	Low
Sheek-----	---	---	Low	Moderate	Low
132: Typic Argiaquolls-----	---	---	High	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
133: Typic Torriorthents-----	Bedrock (paralithic)	6-80	Low	High	Moderate
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
134: Umbarg-----	---	---	Moderate	Moderate	Low
Winner-----	---	---	High	High	Low
Tesajo-----	---	---	Moderate	Moderate	Low
135: Ustic Torrifluvents-----	---	---	Low	Low	Low
136: Ustic Torriorthents-----	---	---	Low	High	Low
Gullied land-----	---	---	Low	High	Low
137: Ustorthents-----	Bedrock (paralithic)	10-80	Low	High	Moderate
138: Uzacol-----	Bedrock (paralithic)	40-60	Low	High	High
Zwicker-----	Bedrock (paralithic)	20-40	Low	High	High
Claysprings-----	Bedrock (paralithic)	6-20	Low	High	High
139: Water-----	---	---	---	---	---
140: Wauquie-----	---	---	Moderate	Low	Low
141: Wauquie-----	---	---	Moderate	Low	Low
Dolcan-----	Bedrock (paralithic)	6-20	Low	Low	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
142: Wauquie-----	---	---	Moderate	Low	Low
Dolcan-----	Bedrock (paralithic)	6-20	Low	Low	Low
Rock outcrop-----	Bedrock (lithic)	0-0	None	---	---
143: Wetherill-----	---	---	Moderate	High	Low
144: Wetherill-----	---	---	Moderate	High	Low
145: Wetherill-----	---	---	Moderate	High	Low
146: Yarts-----	---	---	Low	Moderate	Low
147: Yarts-----	---	---	Low	Moderate	Low
148: Zau-----	Bedrock (paralithic)	20-40	Low	Moderate	Low
149: Zigzag-----	Bedrock (paralithic)	6-20	Low	High	Low
150: Zigzag-----	Bedrock (paralithic)	6-20	Low	High	Low
Sideshow-----	---	---	Low	High	Low
151: Zyme-----	Bedrock (paralithic)	6-20	Low	High	Low
152: Zyme-----	Bedrock (paralithic)	6-20	Low	High	Low

Table 19.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Ackmen-----	Fine-silty, mixed, superactive, mesic Cumulic Haplustolls
*Apmay-----	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Aquic Cumulic Haplustolls
Arabrab-----	Loamy, mixed, superactive, mesic Lithic Haplustalfts
Archuleta-----	Loamy, mixed, superactive, frigid, shallow Typic Haplustepts
Argiustolls-----	Argiustolls
Barx-----	Fine-loamy, mixed, superactive, mesic Ustic Calciargids
Battlerock-----	Fine-loamy, mixed, superactive, calcareous, mesic Typic Torrifluvents
Beje-----	Loamy, mixed, superactive, frigid Lithic Argiustolls
Bodry-----	Fine, smectitic, calcareous, mesic Ustertic Torriorthents
Burnson-----	Fine, smectitic, frigid Typic Haplustalfts
Cahona-----	Fine-silty, mixed, superactive, mesic Calcicidic Haplustalfts
Claysprings-----	Clayey, smectitic, calcareous, mesic, shallow Typic Torriorthents
Collide-----	Fine, smectitic, mesic Aridic Argiustolls
Crosscan-----	Loamy-skeletal, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Dalmatian-----	Fine-loamy, mixed, superactive, frigid Cumulic Haplustolls
Detra-----	Fine-loamy, mixed, superactive, frigid Pachic Argiustolls
Dolcan-----	Loamy, mixed, superactive, calcareous, mesic, shallow Aridic Ustorthents
Endoaquolls-----	Endoaquolls
Falconry-----	Loamy, mixed, superactive, frigid Lithic Haplustolls
Farb-----	Loamy, mixed, superactive, calcareous, mesic Lithic Torriorthents
Fardraw-----	Clayey-skeletal, smectitic, frigid Typic Argiustolls
Fivepine-----	Clayey, smectitic, frigid Lithic Argiustolls
Fluvaquents-----	Fluvaquents
Fluvents-----	Fluvents
Fughes-----	Fine, smectitic, frigid Pachic Argiustolls
Gapmesa-----	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Gladel-----	Loamy, mixed, superactive, mesic Aridic Lithic Haplustepts
Goldbug-----	Fine, smectitic, frigid Typic Haplustalfts
Granath-----	Fine-silty, mixed, superactive, frigid Typic Argiustolls
Haplustalfts-----	Haplustalfts
Haplustolls-----	Haplustolls
Herm-----	Fine, smectitic, frigid Typic Argiustolls
Hesperus-----	Fine-loamy, mixed, superactive, frigid Pachic Argiustolls
Ilex-----	Fine, smectitic, frigid Calcic Haplustalfts
Irak-----	Fine-silty, mixed, superactive, mesic Cumulic Haplustolls
Jemco-----	Fine-loamy, mixed, superactive, frigid Typic Haplustalfts
Lazear-----	Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents
Lillings-----	Fine-silty, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Littlenan-----	Fine, smectitic, mesic Ustertic Haplocambids
Longburn-----	Loamy-skeletal, mixed, superactive, mesic Lithic Haplustalfts
Mack-----	Fine-loamy, mixed, superactive, mesic Typic Calciargids
Mikett-----	Fine-loamy, mixed, superactive, calcareous, mesic Oxyaquic Torriorthents
Mikim-----	Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Morefield-----	Fine-silty, mixed, superactive, mesic Aridic Paleustalfts
Nortez-----	Fine, smectitic, frigid Typic Argiustolls
Northrim-----	Fine-loamy, mixed, superactive, frigid Typic Haplustalfts
Ormiston-----	Clayey-skeletal, smectitic, frigid Calcic Haplustalfts
Pagoda-----	Fine, smectitic, frigid Vertic Argiustolls
Payter-----	Coarse-loamy, mixed, superactive, mesic Cumulic Haplustolls
Pinacol-----	Clayey-skeletal, smectitic, frigid Typic Haplustalfts
Pogo-----	Fine-loamy, mixed, superactive, calcareous, mesic Typic Fluvaquents

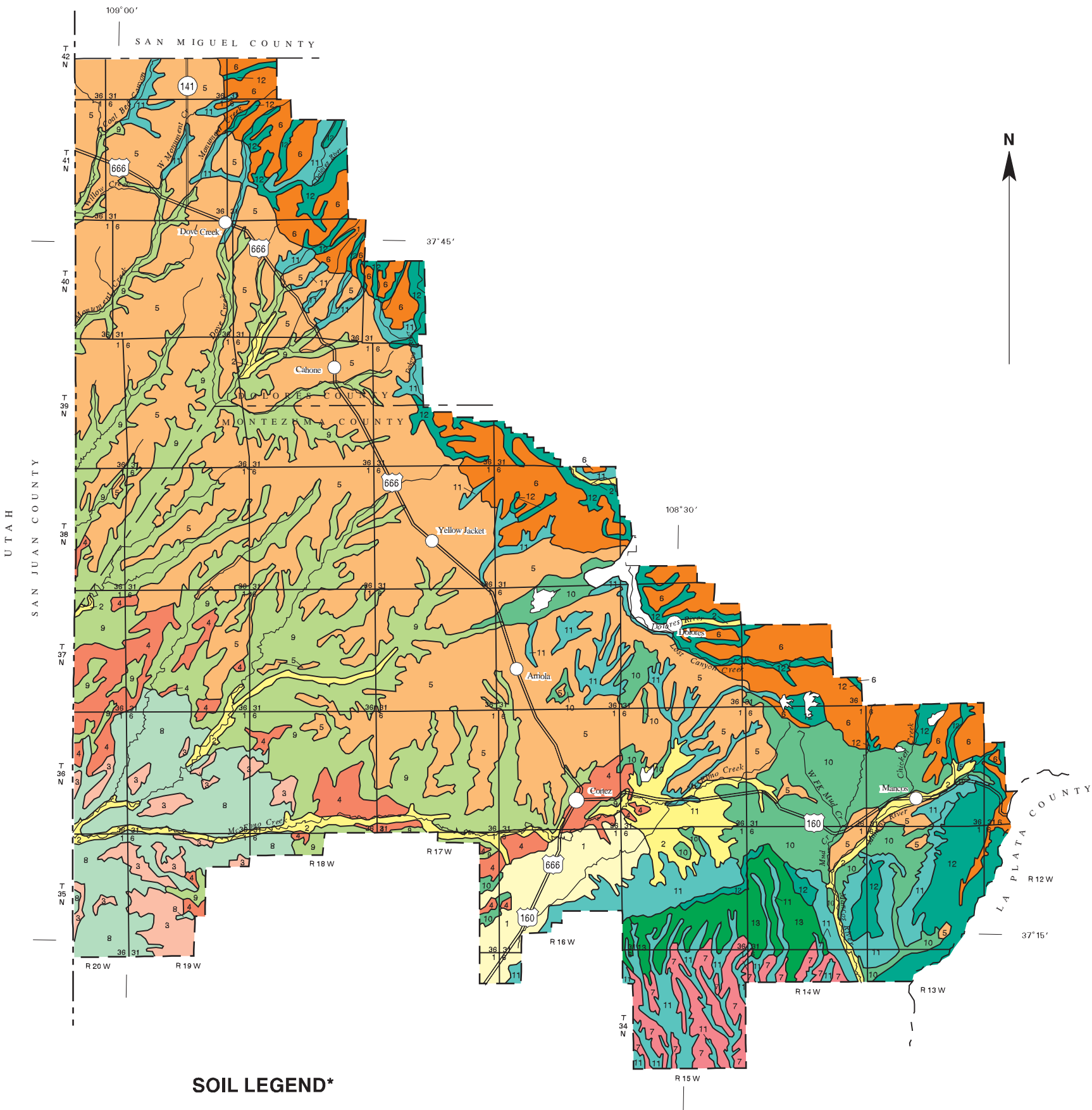
Cortez Area, Colorado

Table 19.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Pramiss-----	Fine, smectitic, frigid Typic Argiustolls
Prater-----	Fine, mixed, superactive, mesic Aridic Haplustalfs
Pulpit-----	Fine-silty, mixed, superactive, mesic Aridic Haplustalfs
Purcella-----	Loamy-skeletal, mixed, superactive, mesic Aridic Argiustolls
Ramper-----	Fine-loamy, mixed, superactive, calcareous, mesic Aridic Ustifluvents
*Ravola-----	Fine-silty, mixed, active, calcareous, mesic Typic Torrifluvents
Recapture-----	Fine-loamy, mixed, superactive, mesic Typic Natrargids
Ricot-----	Fine, smectitic, frigid Typic Argiustolls
Rizno-----	Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents
Romberg-----	Loamy-skeletal, mixed, superactive, mesic Ustic Haplargids
Roubideau-----	Fine-silty, mixed, superactive, mesic Aridic Haplustalfs
Ruinpoint-----	Fine-silty, mixed, superactive, mesic Ustic Haplocambids
Sanchez-----	Loamy-skeletal, mixed, superactive, frigid Lithic Haplustalfs
Schrader-----	Coarse-loamy, mixed, superactive, frigid Cumulic Endoaquolls
Sharps-----	Fine-silty, mixed, superactive, mesic Aridic Haplustalfs
Sheek-----	Loamy-skeletal, mixed, superactive, frigid Typic Haplustalfs
Sheppard-----	Mixed, mesic Typic Torripsamments
Sideshow-----	Fine, smectitic, mesic Aridic Haplusterts
Sideslide-----	Fine-loamy, mixed, superactive, calcareous, mesic Typic Endoaquepts
Stephouse-----	Loamy, mixed, superactive, mesic Lithic Calciustepts
Tesajo-----	Loamy-skeletal, mixed, superactive, mesic Cumulic Haplustolls
Torriorthents-----	Torriorthents
Tragmon-----	Fine-loamy, mixed, superactive, frigid Typic Argiustolls
Typic Argiaquolls-----	Typic Argiaquolls
Typic Torriorthents-----	Typic Torriorthents
Umbarg-----	Fine-loamy, mixed, superactive, mesic Cumulic Haplustolls
Ustic Torrifluvents-----	Ustic Torrifluvents
Ustic Torriorthents-----	Ustic Torriorthents
Ustifluvents-----	Ustifluvents
Ustorthents-----	Ustorthents
Uzacol-----	Fine, smectitic, mesic Vertic Natrargids
Wauquie-----	Loamy-skeletal, mixed, superactive, mesic Aridic Haplustalfs
Wetherill-----	Fine-silty, mixed, superactive, mesic Aridic Haplustalfs
Winner-----	Fine-loamy, mixed, superactive, calcareous, mesic Cumulic Endoaquolls
Yarts-----	Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Zau-----	Fine, smectitic, frigid Typic Argiustolls
Zigzag-----	Clayey, smectitic, calcareous, mesic, shallow Aridic Ustorthents
Zwicker-----	Fine, smectitic, mesic Chromic Haplotorrerts
Zyme-----	Clayey, smectitic, calcareous, mesic, shallow Ustic Torriorthents

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SOIL LEGEND*

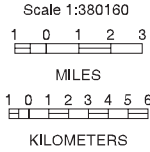
- SOILS ON FLOOD PLAINS, STREAM TERRACES AND ALLUVIAL FANS
- 1 Mikim-Mikett
 - 2 Lillings-Ramper-Fluents
- SOILS ON HILLS AND MESAS
- 3 Mack-Farb
 - 4 Barx-Gapmesa-Rizno
 - 5 Wetherill-Pulpit-Gladel
 - 6 Granath-Ilex-Ormiston
 - 7 Morefield-Arabrab-Longburn
- ROCK OUTCROP AND SOILS IN CANYONS, ON HILLS AND MOUNTAINS
- 8 Typic Torriorthents-Claysprings-Uzacol
 - 9 Romberg-Crosscan-Rock outcrop
 - 10 Sideshow-Zigzag
 - 11 Wauquie-Dolcan-Rock outcrop
 - 12 Sheek-Archuleta-Pramiss
 - 13 Northrim-Prater-Sheek
- Water

SECTIONALIZED
TOWNSHIP

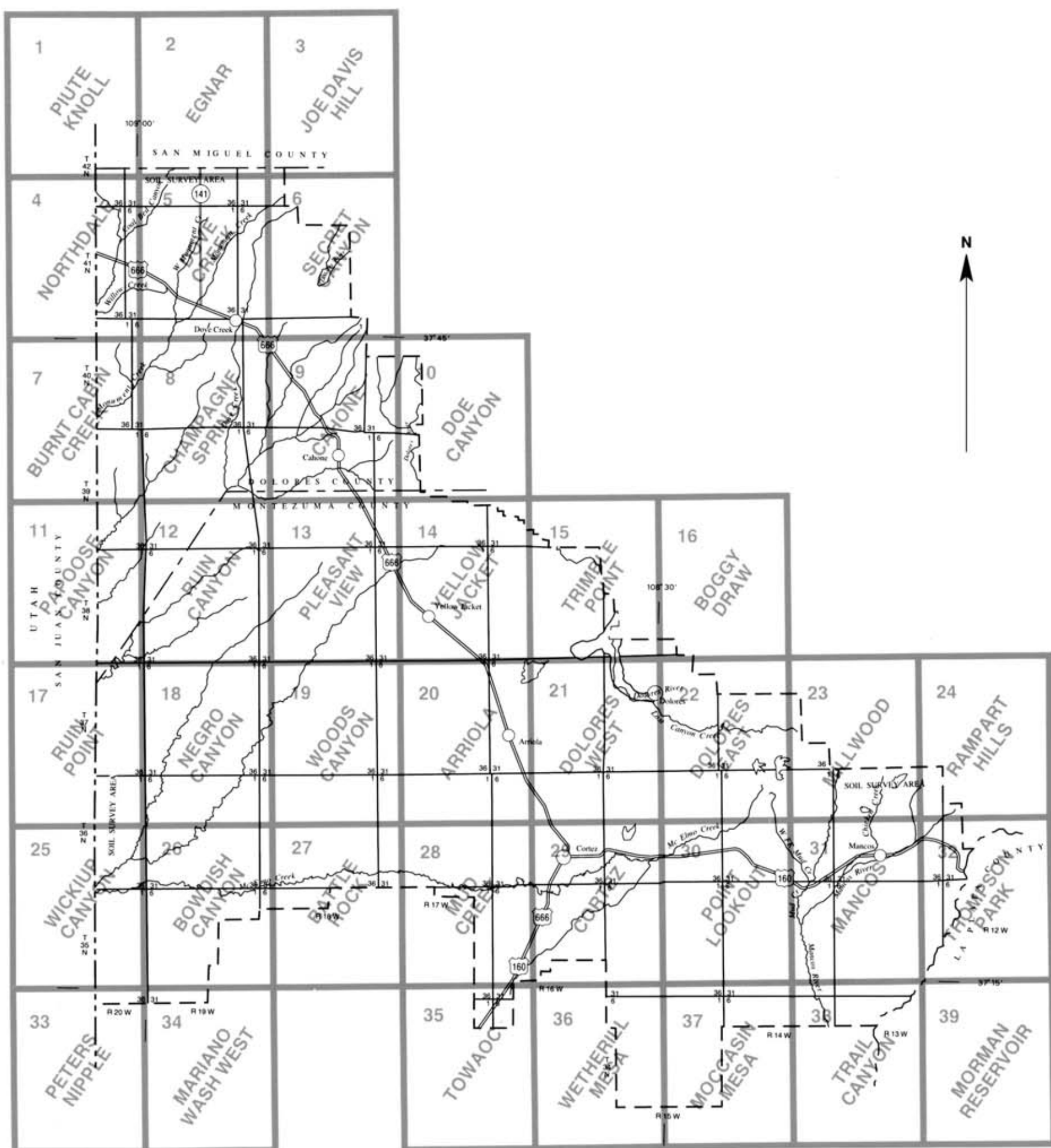
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
IN COOPERATION WITH
UNITED STATES DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
NATIONAL PARK SERVICE
AND THE
COLORADO AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
CORTEZ AREA, COLORADO
Including parts of
Dolores and Montezuma Counties



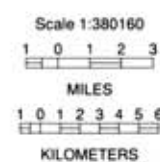
Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



SECTIONALIZED
TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

INDEX TO MAP SHEETS
CORTEZ AREA, COLORADO
Including parts of
Dolores and Montezuma Counties



SOIL LEGEND

Publication map symbols are numerical and assigned according to the alphabetical sequence of the mapping units.

SYMBOL	NAME	SYMBOL	NAME
1	Ackmen loam, 1 to 3 percent slopes	76	Morefield loam, 1 to 3 percent slopes
2	Ackmen loam, 3 to 6 percent slopes	77	Morefield loam, 3 to 6 percent slopes
3	Arabrab loamy sand, 3 to 9 percent slopes		
4	Arabrab-Longburn complex, 3 to 15 percent slopes	78	Nortez-Granath complex, 0 to 6 percent slopes
5	Archuleta-Sanchez complex, 12 to 65 percent slopes	79	Northrim cobbly loam, 15 to 40 percent slopes
6	Argiustolls-Haplustalfs complex, 30 to 80 percent slopes		
7	Argiustolls-Haplustalfs-Rock outcrop complex, 30 to 80 percent slopes	80	Ormiston-Beje complex, 5 to 30 percent slopes
		81	Ormiston-Fivepine complex, 0 to 15 percent slopes
8	Barx loam, 3 to 6 percent slopes	82	Ormiston-Granath complex, 1 to 12 percent slopes
9	Barx loam, 6 to 12 percent slopes	83	Ormiston-Nortez complex, 3 to 12 percent slopes
10	Barx very fine sandy loam, 1 to 4 percent slopes		
11	Barx-Gapmesa complex, 2 to 6 percent slopes	84	Payter sandy loam, 3 to 15 percent slopes
12	Battlerock clay loam, 0 to 6 percent slopes	85	Pinacol loam, 1 to 12 percent slopes
13	Beje-Tragmon complex, 3 to 9 percent slopes	86	Pinacol loam, 12 to 40 percent slopes
14	Burnson loam, 1 to 15 percent slopes	87	Pits
15	Burnson loam, dry, 1 to 15 percent slopes	88	Pogo loam, 0 to 2 percent slopes
16	Burnson-Herm complex, 15 to 30 percent slopes	89	Pramiss very cobbly loam, 6 to 25 percent slopes
		90	Pramiss-Granath complex, 3 to 9 percent slopes
17	Cahona loam, 1 to 3 percent slopes	91	Prater loam, 10 to 25 percent slopes
18	Cahona loam, 3 to 6 percent slopes	92	Prater-Dolcan complex, 25 to 60 percent slopes
19	Cahona loam, 6 to 12 percent slopes	93	Pulpit loam, 3 to 12 percent slopes
20	Cahona-Pulpit complex, 3 to 9 percent slopes	94	Pulpit loam, 3 to 6 percent slopes
21	Cahona-Sharps-Wetherill complex, 2 to 6 percent slopes	95	Pulpit loam, 6 to 12 percent slopes
22	Claysprings very stony clay loam, 12 to 65 percent slopes	96	Purcella loam, 0 to 3 percent slopes
23	Collide clay loam, 3 to 6 percent slopes		
24	Collide clay loam, 6 to 12 percent slopes	97	Ramper clay loam, 0 to 3 percent slopes
25	Collide complex, 0 to 2 percent slopes	98	Ramper loam, 0 to 3 percent slopes
26	Collide complex, 2 to 6 percent slopes	99	Ravola clay loam, 0 to 3 percent slopes
		100	Recapture fine sandy loam, 0 to 6 percent slopes
27	Dalmatian-Apmay-Schrader complex, 0 to 5 percent slopes	101	Recapture sandy loam, 0 to 6 percent slopes
28	Dam	102	Ricot loam, 1 to 3 percent slopes
		103	Ricot loam, 3 to 6 percent slopes
29	Endoaquolls-Ustifluvents complex, 0 to 5 percent slopes	104	Ricot loam, 6 to 12 percent slopes
		105	Rizno-Gapmesa complex, 3 to 9 percent slopes
30	Falconry gravelly fine sandy loam, 3 to 25 percent slopes	106	Rizno-Littlenan-Bodry association, 3 to 50 percent slopes
31	Farb-Rock outcrop complex, 3 to 12 percent slopes	107	Rizno-Ruinpoint-Rock outcrop complex, 1 to 15 percent slopes
32	Fardraw loam, 3 to 15 percent slopes	108	Rock outcrop
33	Fardraw very cobbly loam, 0 to 9 percent slopes	109	Romberg-Crossscan complex, 6 to 25 percent slopes
34	Fardraw very cobbly loam, 9 to 25 percent slopes	110	Romberg-Crossscan-Rock outcrop complex, 25 to 80 percent slopes
35	Fardraw-Granath complex, 3 to 12 percent slopes	111	Roubideau loam, 1 to 6 percent slopes
36	Fivepine-Nortez complex, 0 to 15 percent slopes		
37	Fluvaquents-Haplustolls complex, 0 to 5 percent slopes	112	Sharps loam, 3 to 6 percent slopes
38	Fluvents-Fluvaquents complex, 0 to 3 percent slopes	113	Sharps loam, 6 to 12 percent slopes
39	Fughes loam, 1 to 12 percent slopes	114	Sharps loam, dry, 6 to 12 percent slopes
40	Fughes-Herm complex, 5 to 25 percent slopes	115	Sharps, dry-Gapmesa complex, 6 to 12 percent slopes
41	Fughes-Sheek complex, 15 to 30 percent slopes	116	Sharps-Cahona complex, 6 to 12 percent slopes
		117	Sharps-Pulpit complex, 2 to 6 percent slopes
42	Gladel-Pulpit complex, 3 to 9 percent slopes	118	Sharps-Pulpit complex, 6 to 12 percent slopes
43	Goldbug very stony fine sandy loam, 5 to 30 percent slopes	119	Sheek-Archuleta complex, 6 to 25 percent slopes
44	Granath loam, 3 to 6 percent slopes	120	Sheek-Archuleta-Rock outcrop complex, 25 to 80 percent slopes
45	Granath loam, 6 to 12 percent slopes	121	Sheek-Archuleta-Rock outcrop complex, 25 to 80 percent slopes, north aspect
46	Granath-Fughes complex, 0 to 15 percent slopes	122	Sheppard fine sand, 1 to 6 percent slopes
47	Granath-Nortez complex, 0 to 15 percent slopes	123	Sideshow silty clay loam, 0 to 3 percent slopes
48	Granath-Ormiston-Fivepine complex, 0 to 15 percent slopes	124	Sideshow silty clay loam, 3 to 6 percent slopes
		125	Sideshow silty clay loam, 6 to 12 percent slopes
49	Herm loam, 6 to 25 percent slopes	126	Sideshow-Zigzag complex, 3 to 25 percent slopes
50	Herm very cobbly loam, 15 to 40 percent slopes	127	Sideslide silty clay loam, 3 to 9 percent slopes
51	Herm-Pagoda complex, 0 to 15 percent slopes	128	Stephouse-Rock outcrop complex, 3 to 10 percent slopes
52	Hesperus loam, 0 to 3 percent slopes		
53	Hesperus loam, 3 to 6 percent slopes	129	Torriorthents, 12 to 65 percent slopes
54	Hesperus loam, 6 to 12 percent slopes	130	Torriorthents-Badland complex, 25 to 100 percent slopes
55	Hesperus sandy loam, 3 to 12 percent slopes	131	Tragmon-Sheek complex, 12 to 25 percent slopes
		132	Typic Argiaquolls, 0 to 3 percent slopes
56	Ilex loam, 3 to 12 percent slopes	133	Typic Torriorthents-Rock outcrop complex, 12 to 80 percent slopes
57	Ilex loam, 12 to 25 percent slopes		
58	Ilex-Granath complex, 2 to 6 percent slopes	134	Umbarg-Winner-Tesajo complex, 0 to 2 percent slopes
59	Ilex-Granath complex, 6 to 12 percent slopes	135	Ustic Torrifluvents, 0 to 3 percent slopes
60	Ilex-Pramiss-Falconry complex, 3 to 20 percent slopes	136	Ustic Torriorthents-Gullied land complex, 1 to 60 percent slopes
61	Ilex-Pramiss-Granath complex, 2 to 9 percent slopes	137	Ustorthents, 12 to 65 percent slopes
62	Irak loam, 0 to 3 percent slopes	138	Uzacol-Zwicker-Claysprings complex, 3 to 12 percent slopes
63	Jemco-Detra-Beje complex, 1 to 15 percent slopes	139	Water
		140	Wauquie very stony loam, 6 to 25 percent slopes
64	Lazear-Rock outcrop complex, 12 to 65 percent slopes	141	Wauquie-Dolcan complex, 6 to 25 percent slopes
65	Lillings silt loam, sodic, 1 to 3 percent slopes	142	Wauquie-Dolcan-Rock outcrop complex, 25 to 80 percent slopes
66	Lillings silty clay loam, 1 to 3 percent slopes	143	Wetherill loam, 1 to 3 percent slopes
67	Lillings silty clay loam, 3 to 6 percent slopes	144	Wetherill loam, 3 to 6 percent slopes
68	Longburn-Rock outcrop complex, 10 to 45 percent slopes	145	Wetherill loam, 6 to 12 percent slopes
69	Longburn-Rock outcrop complex, 45 to 80 percent slopes		
		146	Yarts clay loam, 1 to 6 percent slopes
70	Mack fine sandy loam, 0 to 6 percent slopes	147	Yarts fine sandy loam, 1 to 6 percent slopes
71	Mikett clay loam, saline-sodic, 0 to 3 percent slopes		
72	Mikett clay loam, 0 to 3 percent slopes	148	Zau stony loam, 9 to 25 percent slopes
73	Mikim clay loam, 1 to 3 percent slopes	149	Zigzag very channery clay loam, 3 to 25 percent slopes
74	Mikim clay loam, sodic, 0 to 3 percent slopes	150	Zigzag-Sideshow complex, 25 to 65 percent slopes
75	Mikim loam, 3 to 6 percent slopes	151	Zyme gravelly clay loam, 3 to 12 percent slopes
		152	Zyme very channery clay loam, 12 to 65 percent slopes

CONVENTIONAL AND SPECIAL
SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

National, state, or province

County or parish

Minor civil division

Reservation (national forest or park, state forest or park, and large airport)

Land grant

Limit of soil survey (label)

Field sheet matchline and neatline

Previously Published Survey

LAND DIVISION CORNER
(sections and land grants)

ROADS

Other roads

ROAD EMBLEM & DESIGNATIONS

Federal

State

DAMS

Medium or Small
(Named where applicable)

PITS

Gravel pit

Mine or quarry

WATER FEATURES

DRAINAGE

Perennial, double line

Perennial, single line

Intermittent

SMALL LAKES, PONDS AND RESERVOIRS

Perennial water

MISCELLANEOUS WATER FEATURES

Marsh or swamp

Spring

Wet spot

SPECIAL SYMBOLS FOR
SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

ESCARPMENTS

Bedrock (points down slope)

GULLY

MISCELLANEOUS

Clay spot

Gravelly spot

Rock outcrop (includes sandstone and shale)

Saline spot

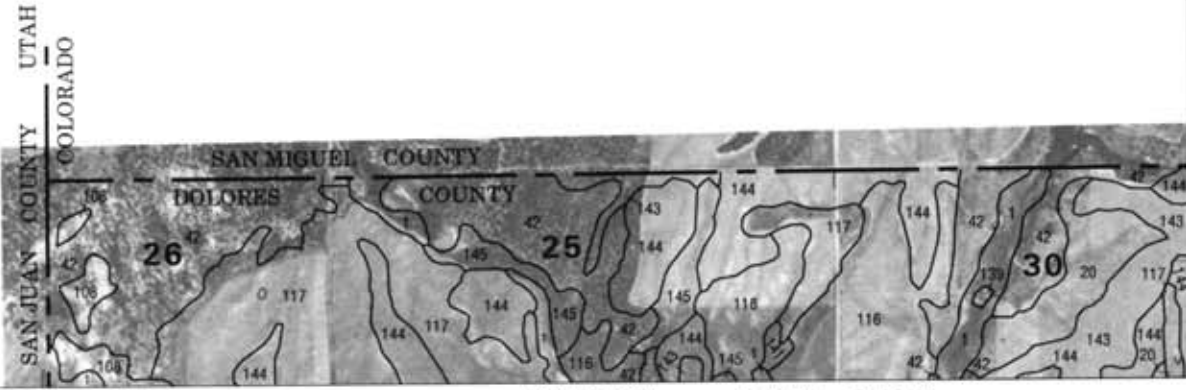
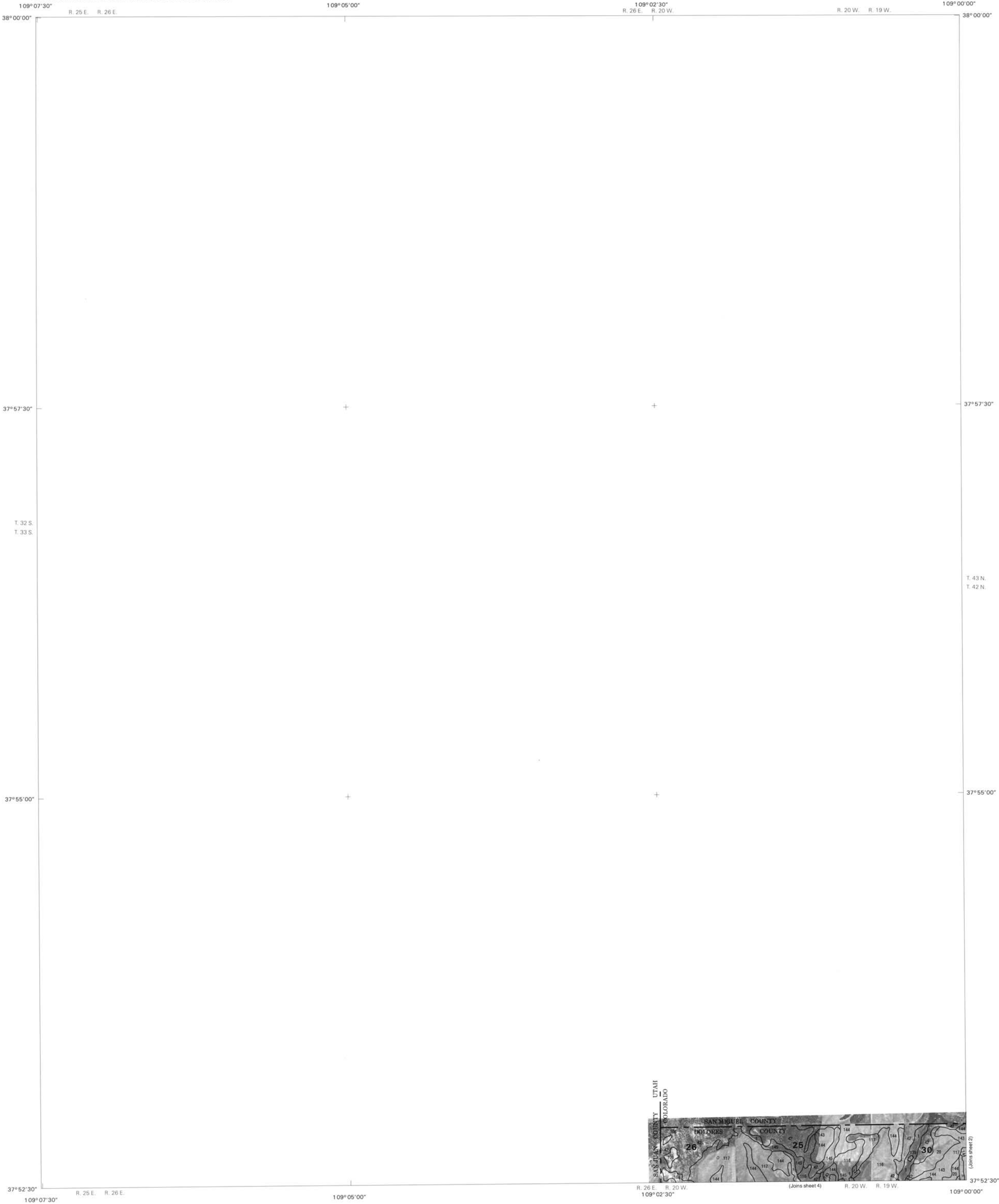
Sandy spot

Severely eroded spot

Sodic spot

Spoil area

Stony spot, very stony spot

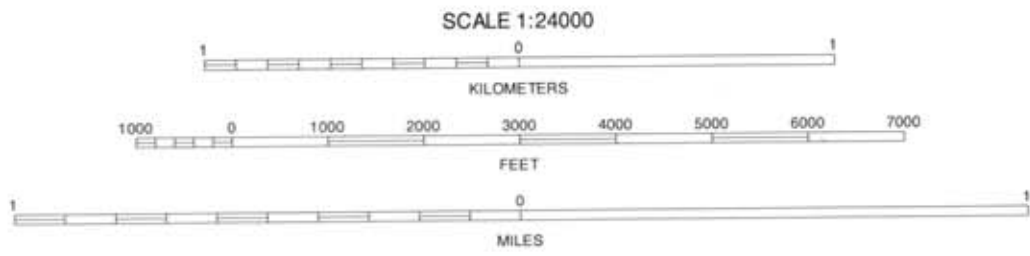


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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

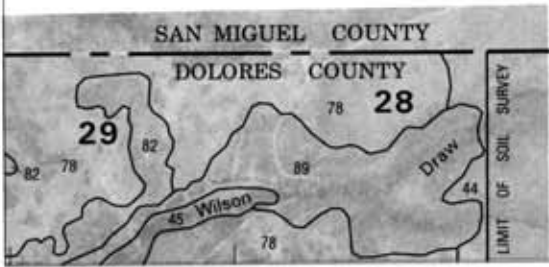
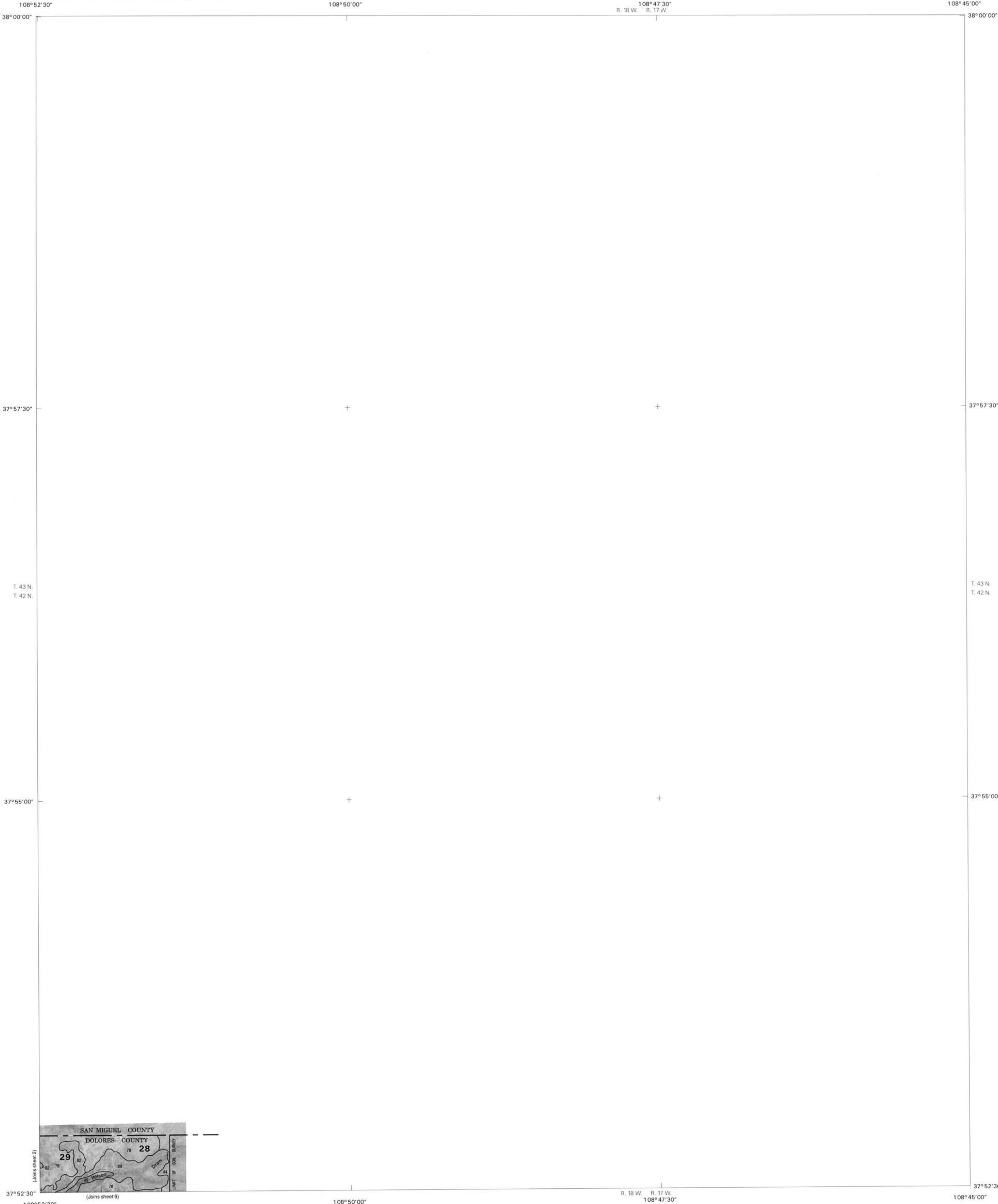


CORTEZ AREA, COLORADO NO. 1

1	2	3	1 SOP CANYON
			2 SUMMIT POINT
			3 HORSE RANGE MESA
4		5	4 EASTLAND NW
			5 EGNAR
			6 EASTLAND
6	7	8	7 NORTHDALE
			8 DOVE CREEK

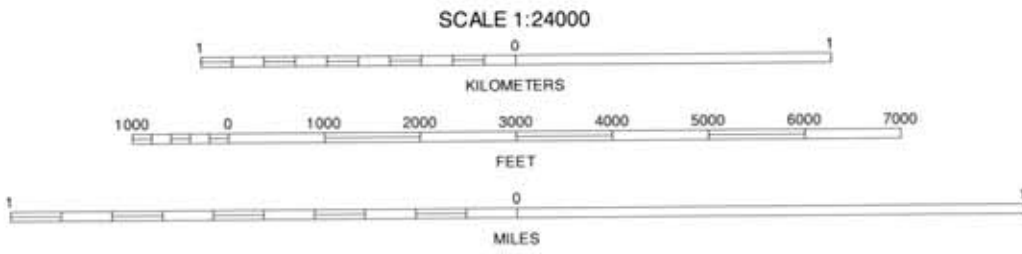
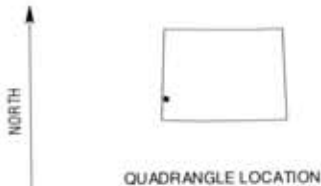
INDEX TO ADJOINING 7.5 MAPS

PIUTE KNOLL, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 39



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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 12.
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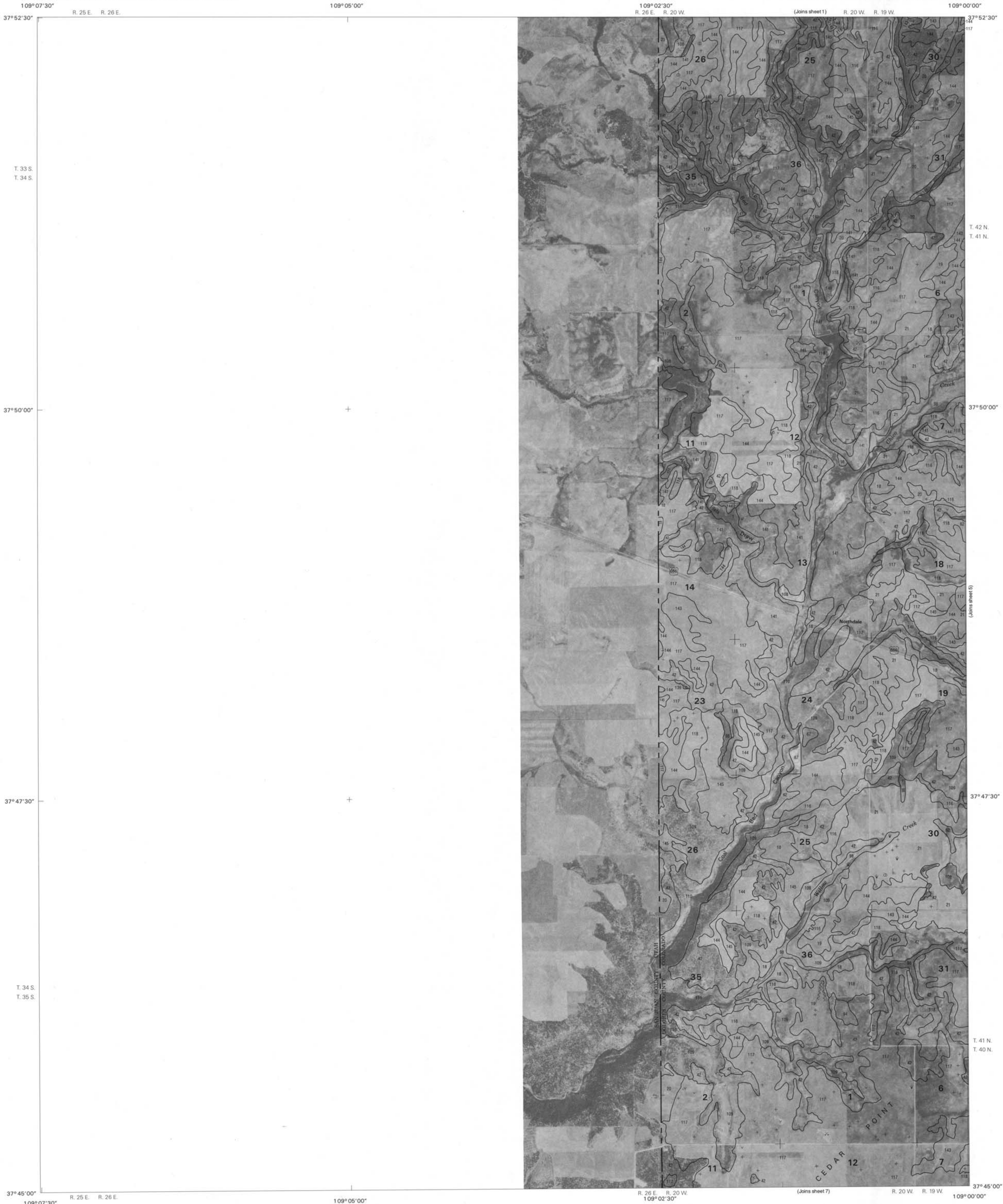


1	2	3	1 HORSE RANGE MESA
			2 HAMM CANYON
4		5	3 GYPSUM GAP
			4 EGNAR
			5 DAWSON DRAW
6	7	8	6 DOVE CREEK
			7 SECRET CANYON
			8 THE GLADE

INDEX TO ADJOINING 7.5 MAPS

INDEX TO ADJOINING 7.5 MAPS

JOE DAVIS HILL, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 39

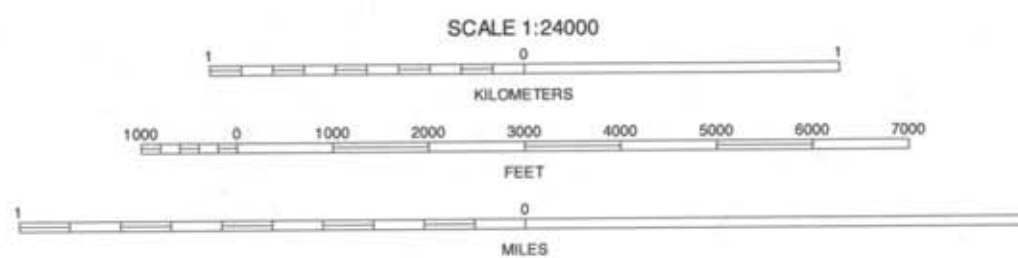


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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION



1	2	3	1 EASTLAND NW
			2 PIUTE KNOLL
			3 EGNAR
4		5	4 EASTLAND
			5 DOVE CREEK
			6 HORSEHEAD POINT
6	7	8	7 BURNT CABIN CREEK
			8 CHAMPAGNE SPRING

INDEX TO ADJOINING T.5 MAPS

INDEX TO ADJOINING 7.5 MAPS

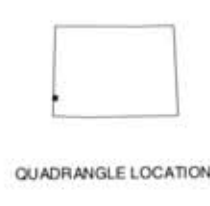
NORTHDALE, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 39



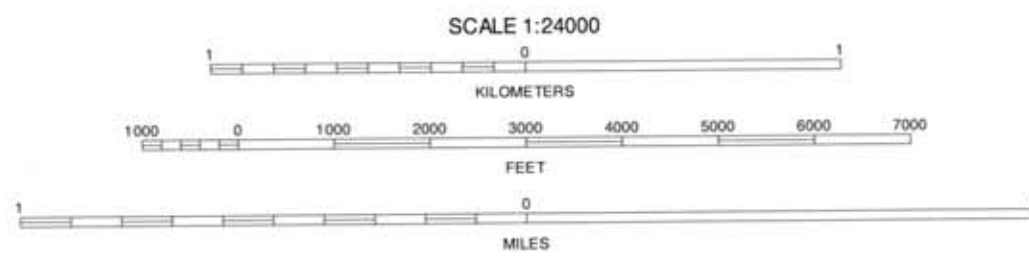
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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land design data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

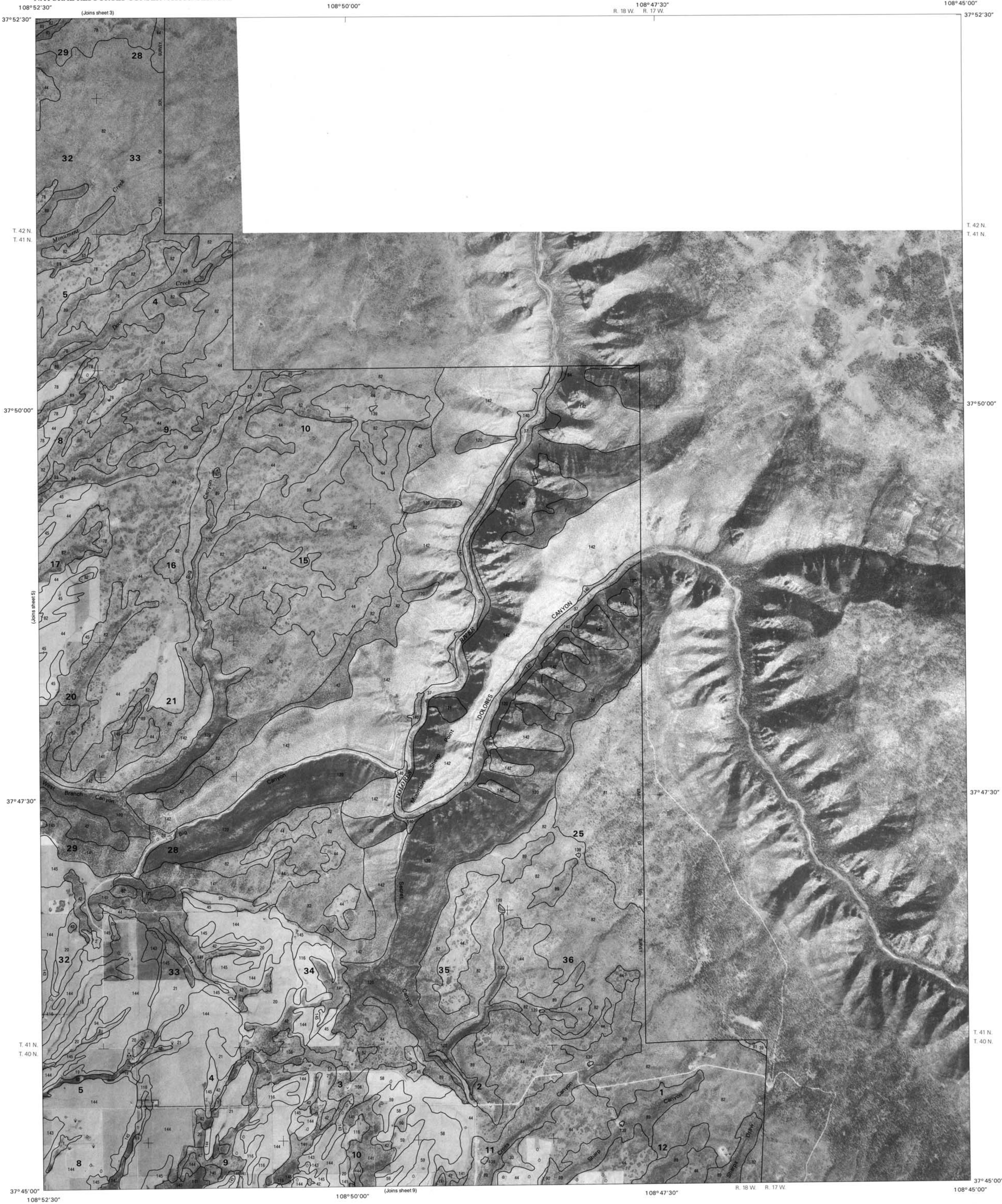


QUADRANGLE LOCATION



1	2	3	1 PIUTE KNOLL
4	5	2 JOE DAVIS HILL	
6	7	3 SECRET CANYON	
		4 BURNT CANYON CREEK	
		5 CHAMPAGNE SPRING	
		6 CAHONE	

INDEX TO ADJOINING 7.5 MAPS

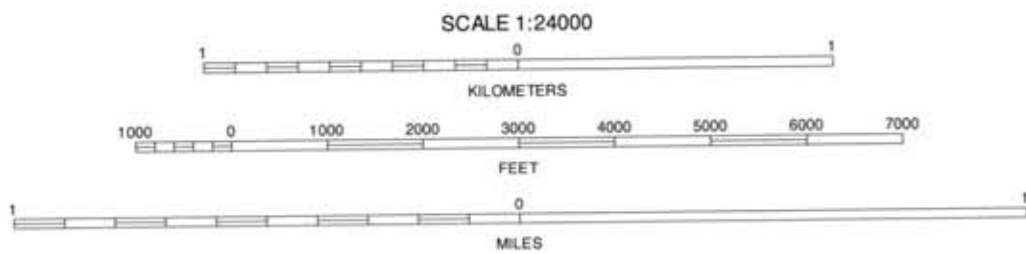


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NORTH

QUADRANGLE LOCATION

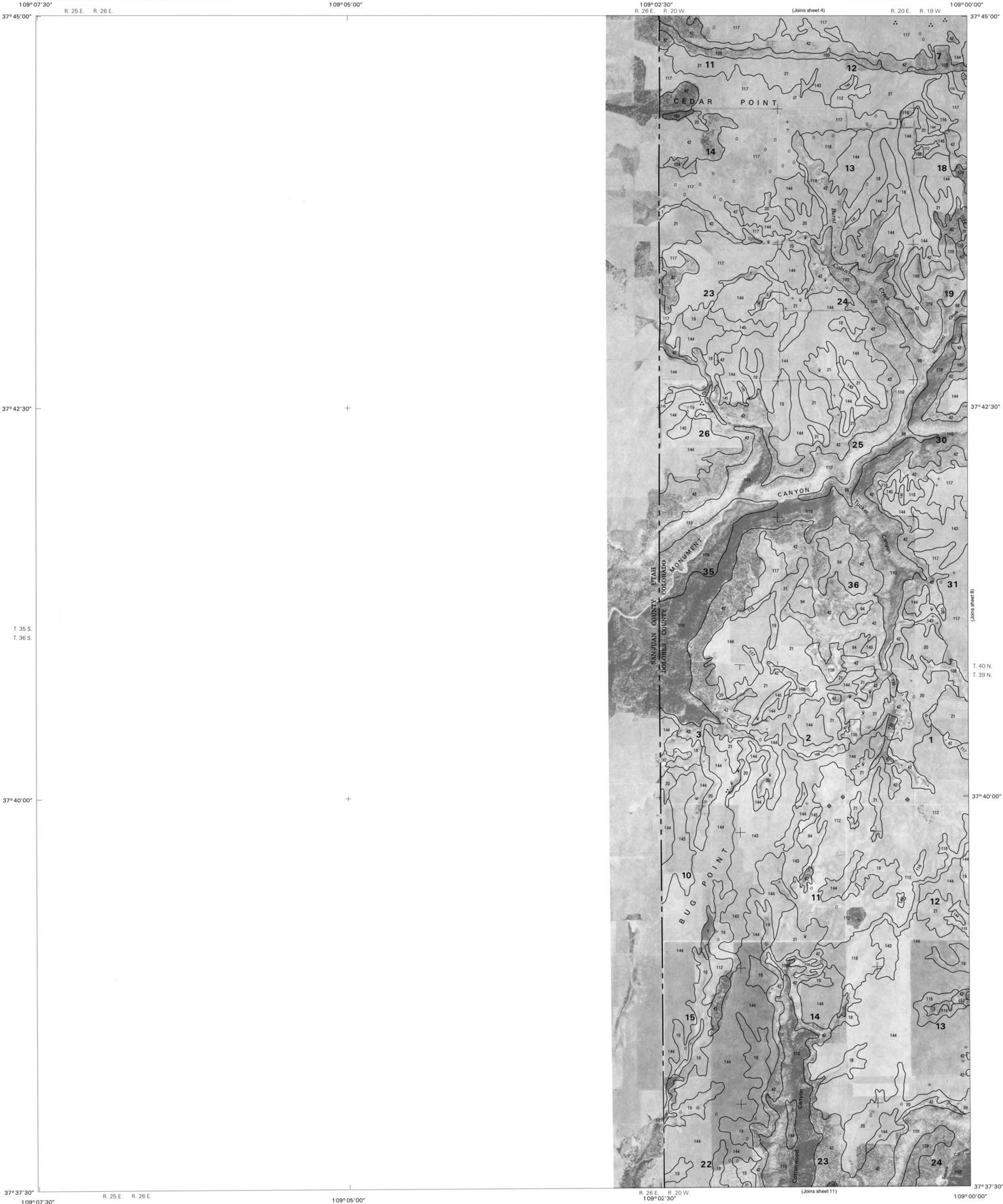


CORTEZ AREA, COLORADO NO. 6

1	2	3	1 EGNAR
4	5	6	2 JOE DAVIS HILL
7	8	9	3 DAWSON DRAW
		10	4 DOVE CREEK
		11	5 THE GLADE
		12	6 CHAMPAGNE SPRING
		13	7 CHAONE
		14	8 DOE CANYON

INDEX TO ADJOINING 7.5 MAPS

SECRET CANYON, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 6 OF 39



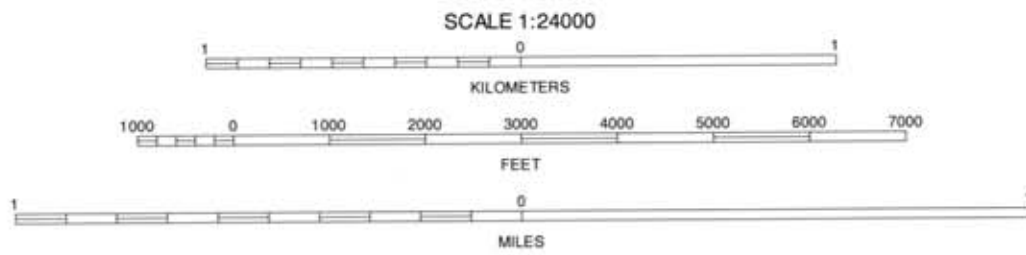
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NORTH



QUADRANGLE LOCATION



CORTEZ AREA, COLORADO NO. 7

1	2	3	1 EASTLAND
			2 NORTHDALE
			3 DOVE CREEK
4		5	4 HORSEHEAD POINT
			5 CHAMPAGNE SPRING
			6 BUG CANYON
			7 PAPOOSE CANYON
6	7	8	8 RUIN CANYON

INDEX TO ADJOINING 7.5 MAPS

BURNT CABIN CREEK, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 7 OF 39



1	2	3	1 NORTHDALE
			2 DOVE CREEK
4		5	3 SECRET CANYON
			4 BURNT CABIN CREEK
6	7	8	5 CAHONE
			6 PAPOOSE CANYON
			7 RUIN CANYON
			8 PLEASANT VIEW

INDEX TO ADJOINING 7.5 MAPS

CHAMPAGNE SPRING, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 8 OF 39



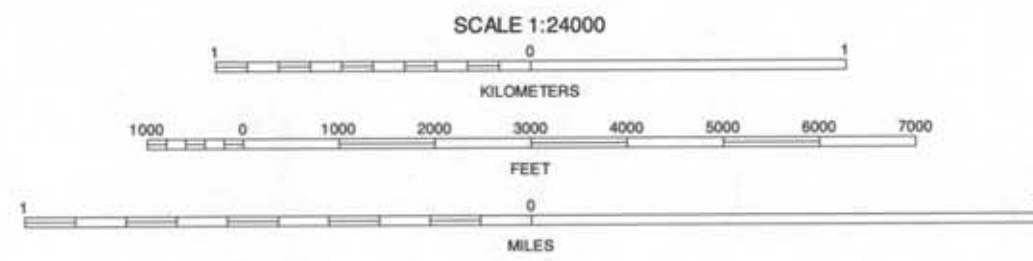
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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



CORTEZ AREA, COLORADO NO. 9

1	2	3	DOVE CREEK
4	5	6	SECRET CANYON
7	8	9	THE GLADE
10	11	12	CHAMPAGNE SPRING
13	14	15	DOE CANYON
16	17	18	RUIN CANYON
19	20	21	PLEASANT VIEW
22	23	24	YELLOW JACKET

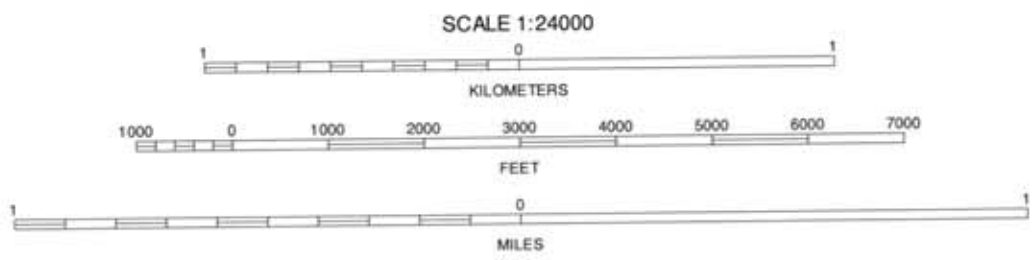
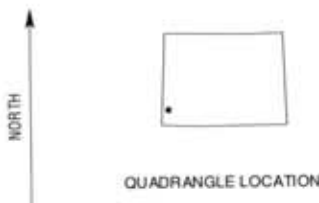
INDEX TO ADJOINING 7.5 MAPS

CAHONE, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 9 OF 39



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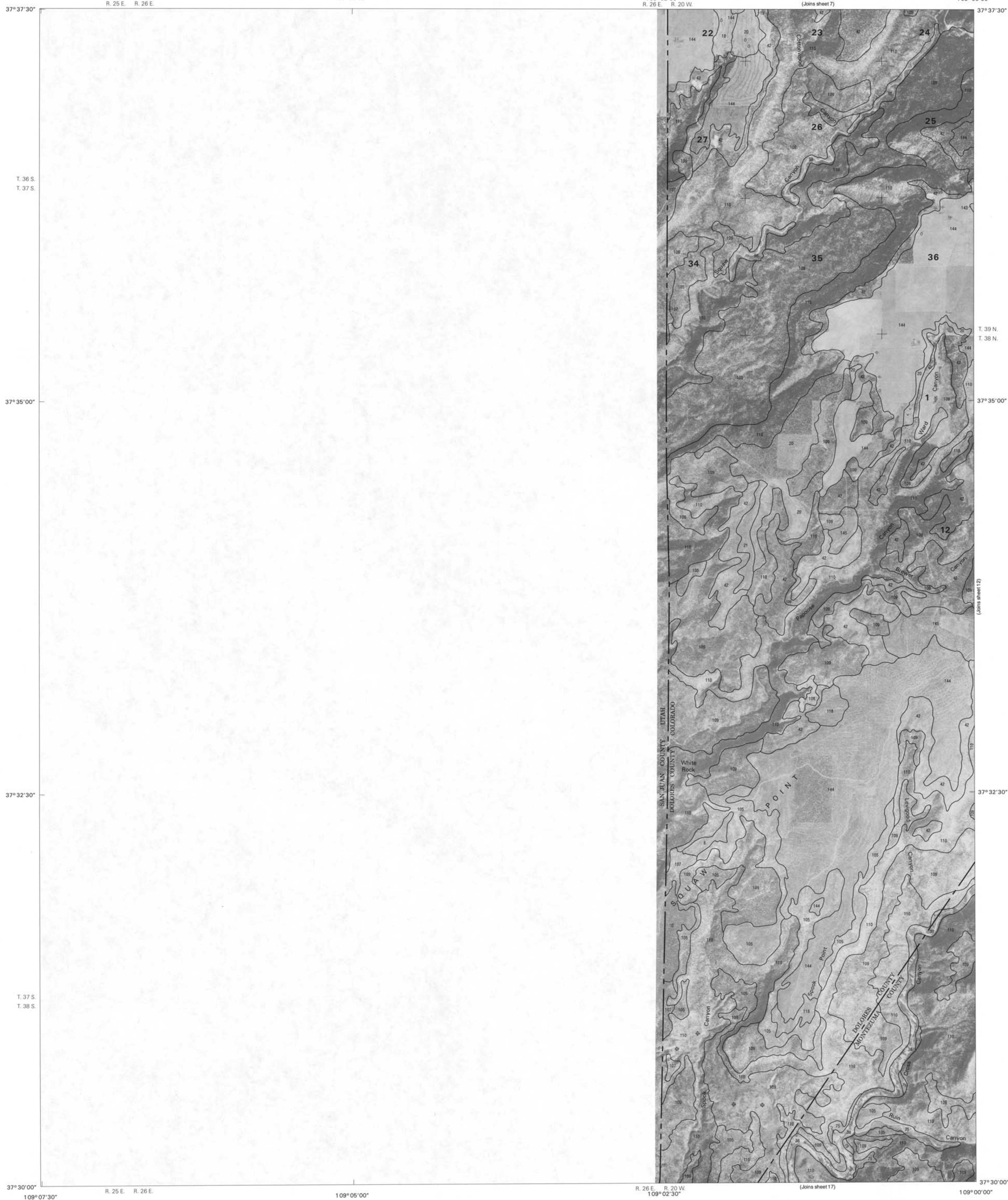
North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



1	2	3
4	5	6
7	8	9

INDEX TO ADJOINING 7.5 MAPS

DOE CANYON, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 39

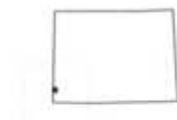


CORTEZ AREA, COLORADO NO. 11

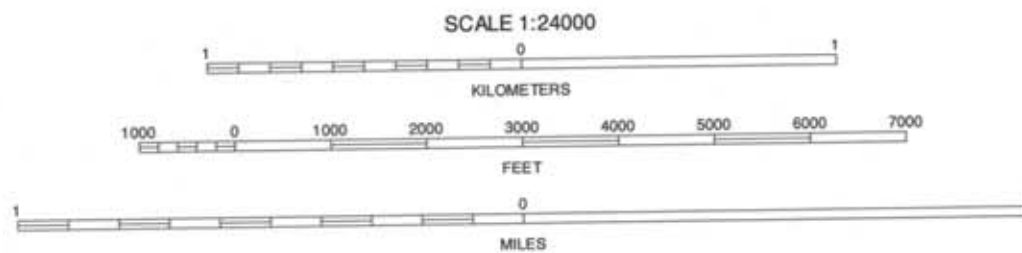


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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

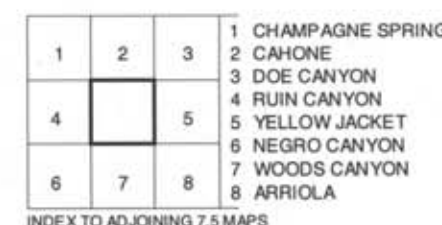


CORTEZ AREA, COLORADO NO. 12

1	2	3
4	5	6
7	8	9

INDEX TO ADJOINING 7.5 MAPS

RUIN CANYON, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 12 OF 39



PLEASANT VIEW, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 39



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1975-1979 aerial photography.

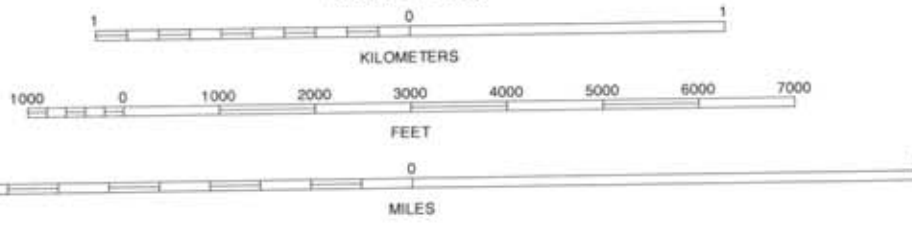
North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

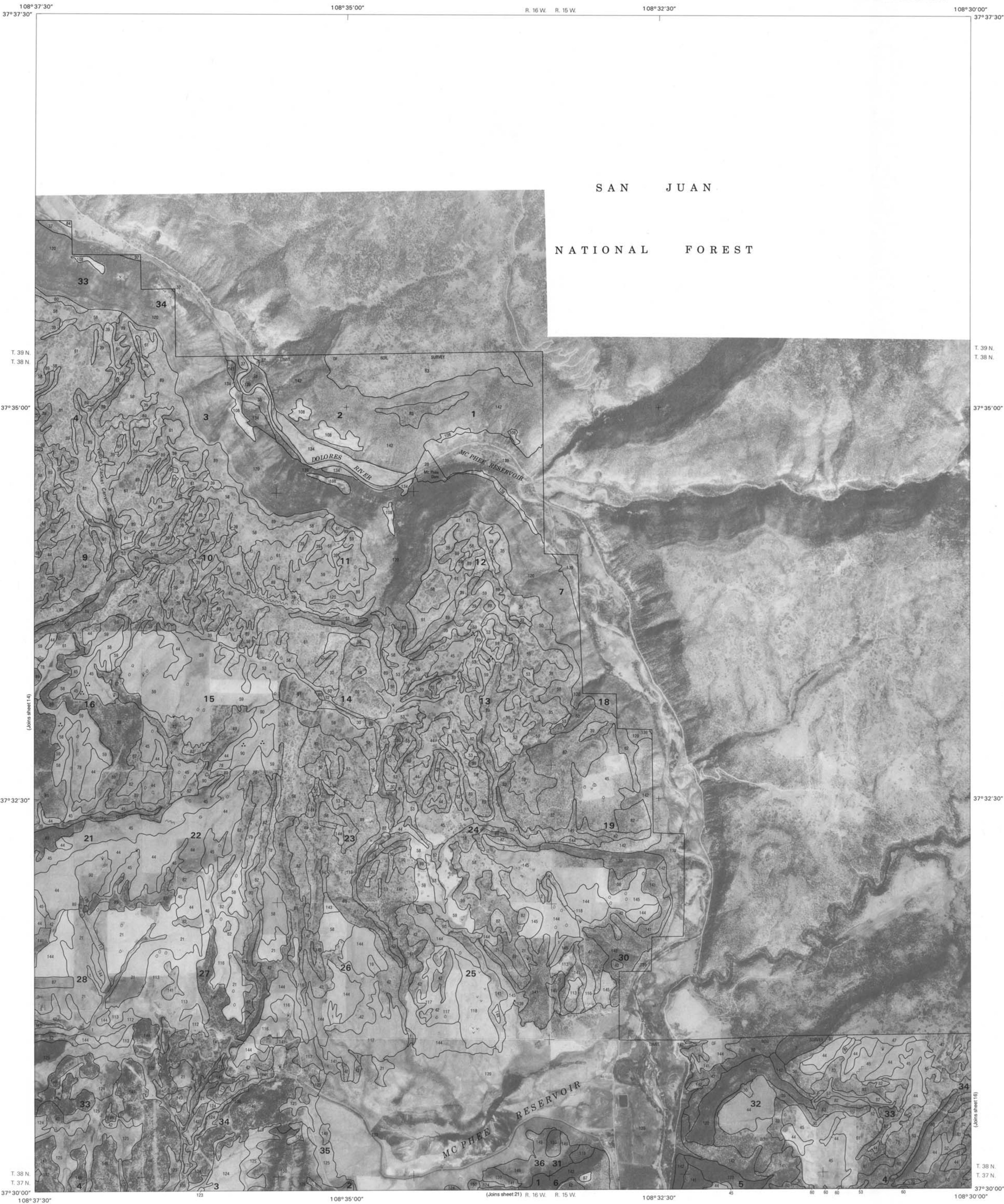
SCALE 1:24000



1	2	3
4	5	6
7	8	

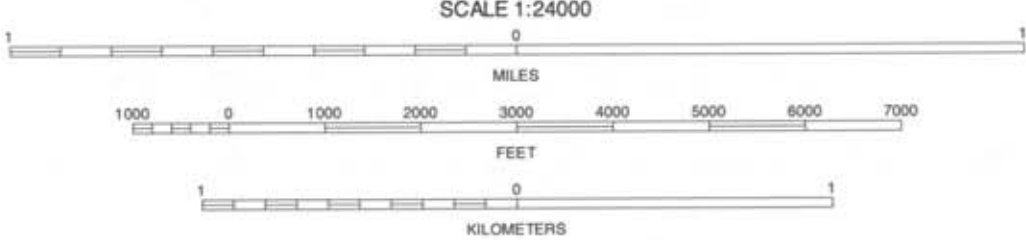
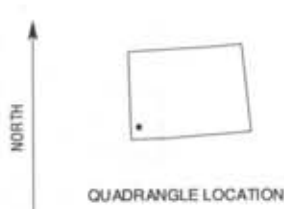
1 CAHONE
2 DOE CANYON
3 NARRAGUNNEP MOUNTAIN
4 PLEASANT VIEW
5 TRIMBLE POINT
6 WOODS CANYON
7 ARRIOLA
8 DOLORES WEST

YELLOW JACKET, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 14 OF 39



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1975-1979 aerial photography.

North American Datum of 1927 (NAD27), Clarke 1866 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 12.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



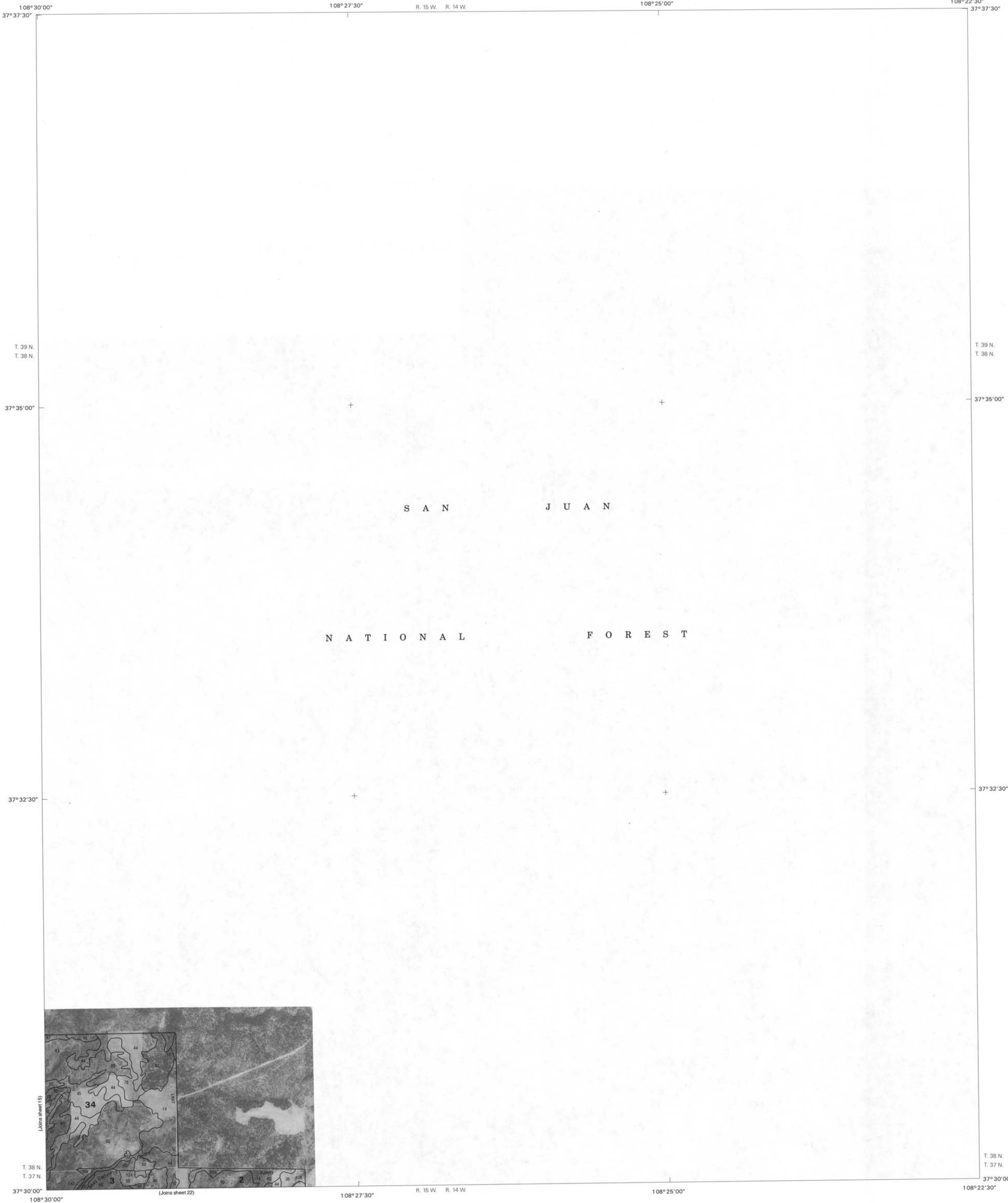
CORTEZ AREA, COLORADO NO. 15

1	2	3
4	5	6
7	8	9

INDEX TO ADJOINING 7.5-MINUTE MAPS

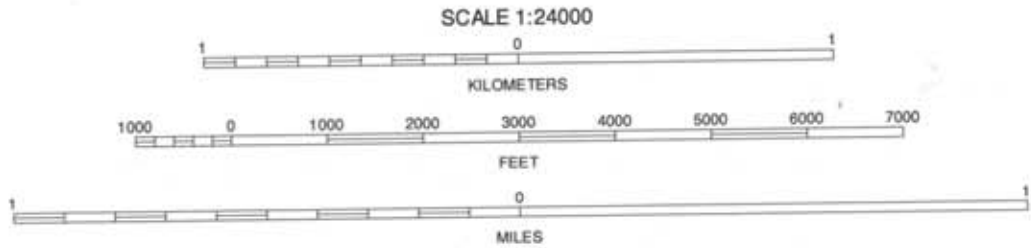
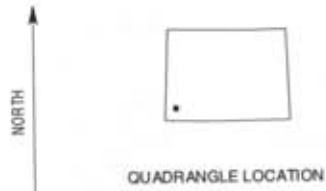
1 DOE CANYON
2 NARRAGUINNEP MOUNTAIN
3 WILLOW SPRING
4 YELLOW JACKET
5 BOOBY DRAW
6 ABRICOLA
7 DOLORES WEST
8 DOLORES EAST

TRIMBLE POINT, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 15 OF 39



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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

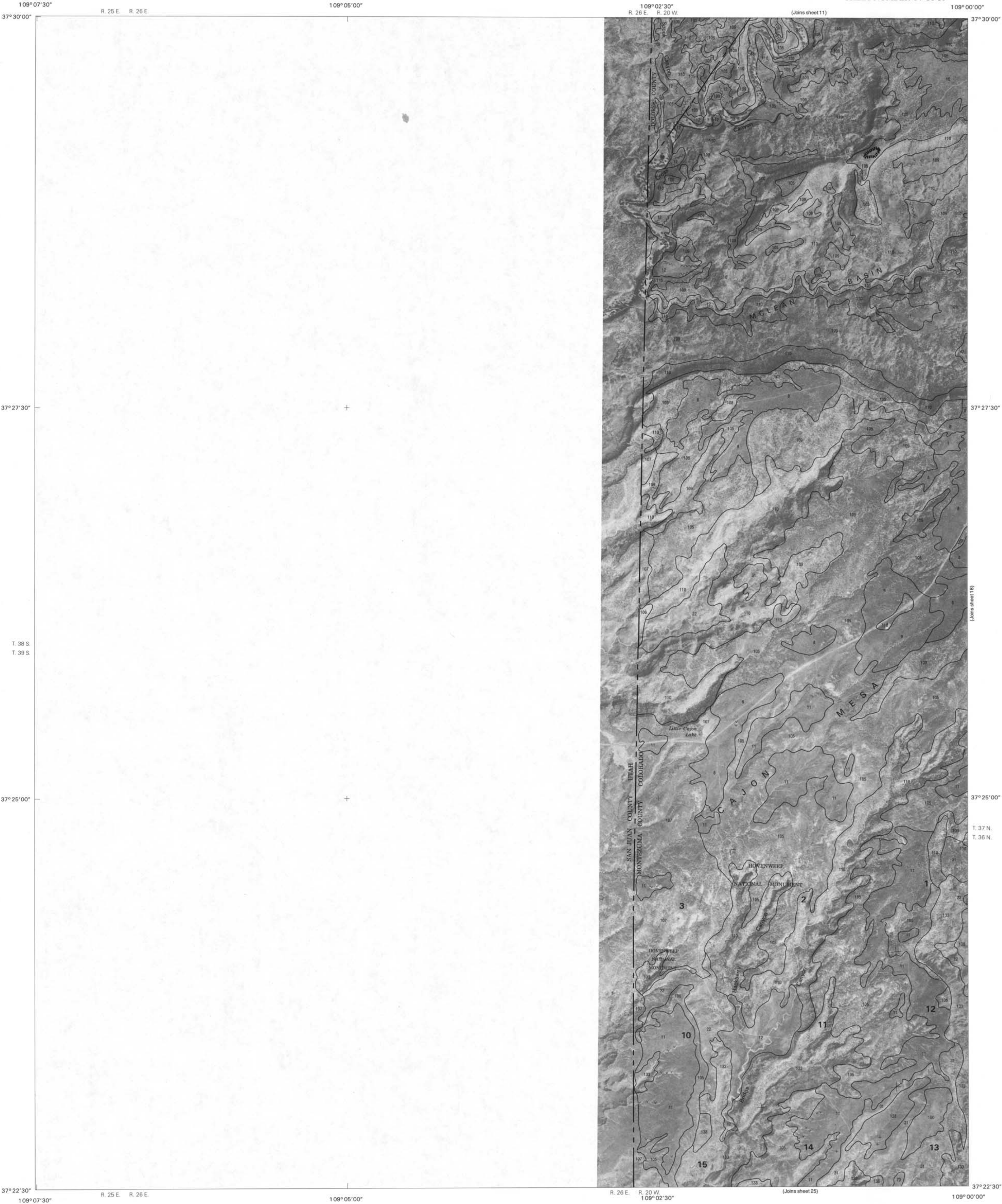


1	2	3	1 NARRAGUINNEP MOUNTAIN
			2 WILLOW SPRING
4		5	3 NIPPLE MOUNTAIN
			4 TRIMBLE POINT
			5 STONER
			6 DOLORES WEST
6	7	8	7 DOLORES EAST
			8 MILLWOOD

INDEX TO ADJOINING 7.5 MAPS

BOGGY DRAW, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 16 OF 39

INDEX TO ADJOINING 7.5 MAPS



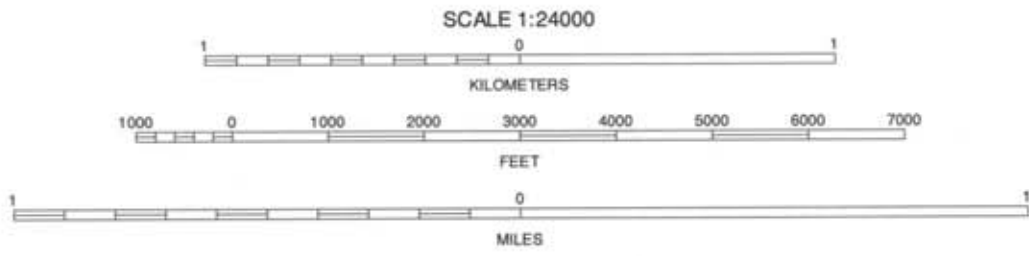
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North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



CORTEZ AREA, COLORADO NO. 17

1	2	3	1	BUG CANYON
4	5	6	2	PAPOOSE CANYON
7	8	9	3	RUIN CANYON
			4	HATCH TRADING POST
			5	NEGRO CANYON
			6	NAVAJO CANYON
			7	WICKIUP CANYON
			8	BOWDISH CANYON

INDEX TO ADJOINING 7.5 MAPS

RUIN POINT, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 17 OF 39

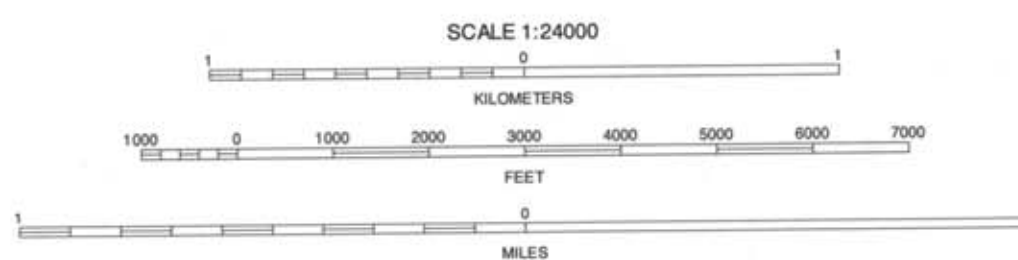


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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



CORTEZ AREA, COLORADO NO. 18

1	2	3
4	5	6
7	8	9

INDEX TO ADJOINING 7.5 MAPS

- 1 PAPOOSE CANYON
- 2 RUIN CANYON
- 3 PLEASANT VIEW
- 4 RUIN POINT
- 5 WOODS CANYON
- 6 WICKIUP CANYON
- 7 BOWDISH CANYON
- 8 BATTLE ROCK

NEGRO CANYON, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 18 OF 39



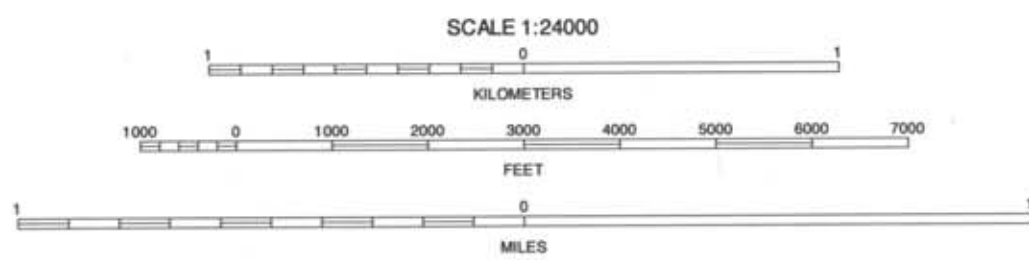
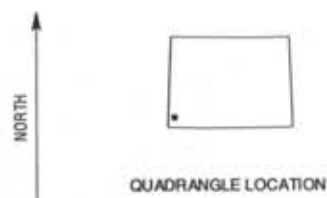
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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 12.
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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 12.
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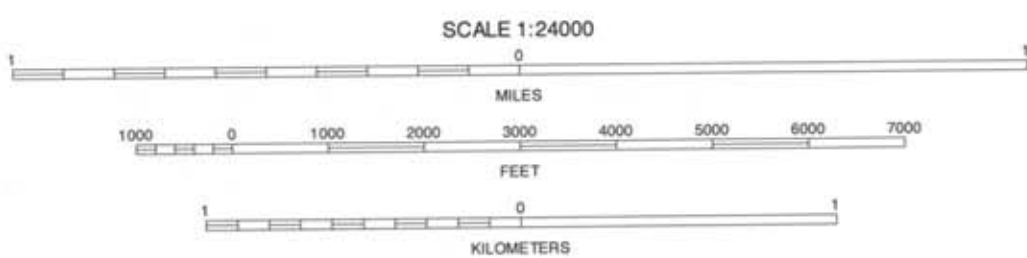
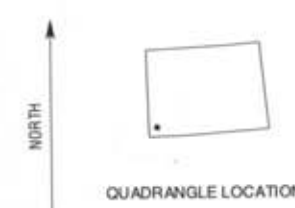
1	2	3	1 PLEASANT VIEW
			2 YELLOW JACKET
4		5	3 TRIMBLE POINT
			4 WOODS CANYON
6	7	8	5 DOLORES WEST
			6 BATTLE ROCK
			7 MUD CREEK
			8 CORTEZ

ARRIOLA, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 20 OF 39



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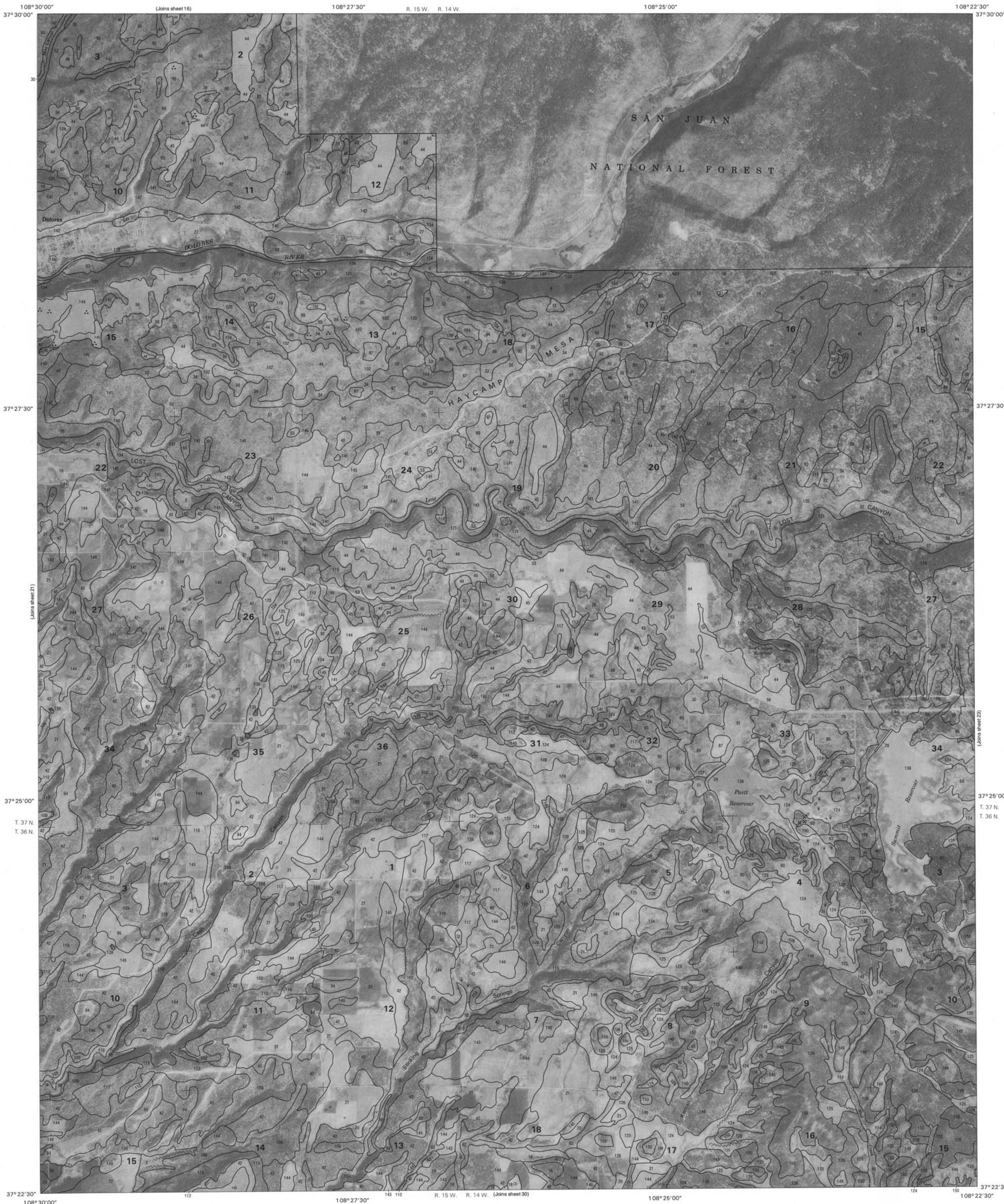
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1	2	3
4	5	6
7	8	9

INDEX TO ADJOINING 7.5 MAPS

DOLORES WEST, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 21 OF 39

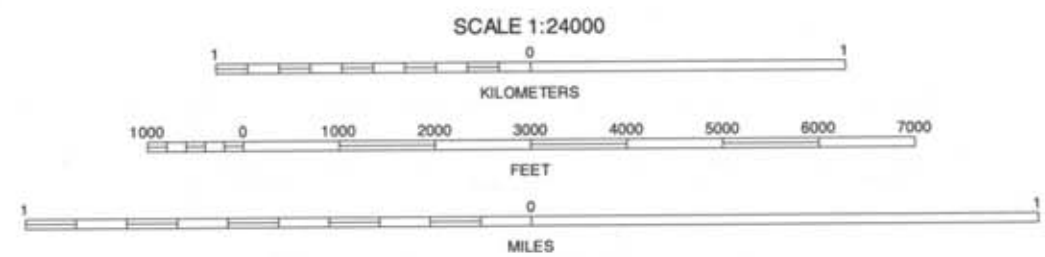


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North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



CORTEZ AREA, COLORADO NO. 22

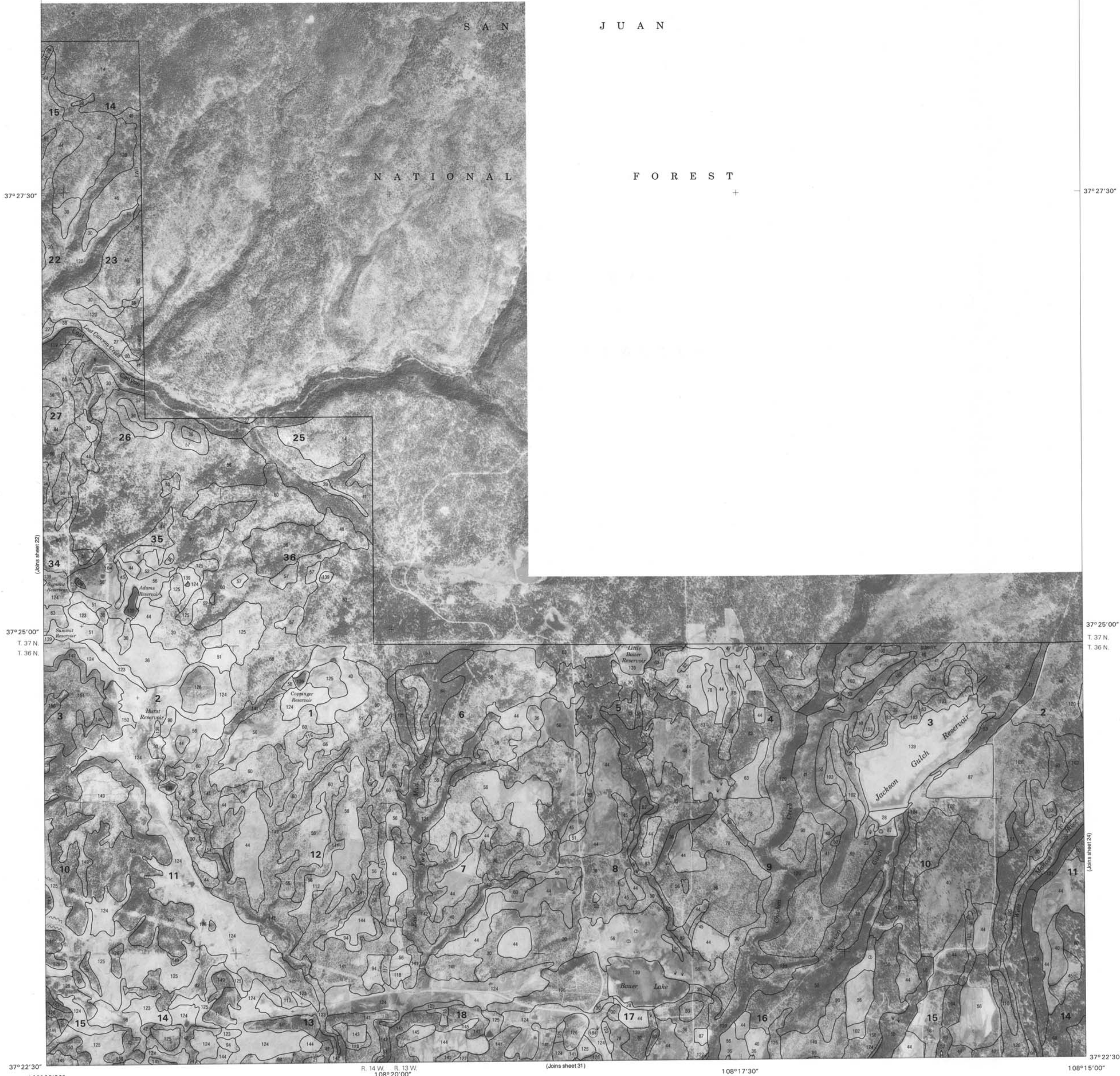
1	2	3
4	5	6
7	8	9

1 TRIMBLE POINT
2 BOGGY DRAW
3 STONER
4 DOLORES WEST
5 MILLWOOD
6 CORTEZ
7 POINT LOOKOUT
8 MANCOS

INDEX TO ADJOINING 7.5 MAPS

DOLORES EAST, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 22 OF 39

37°30'00" 108°22'30" 108°20'00" R. 14 W. R. 13 W. 108°17'30" 37°15'00"



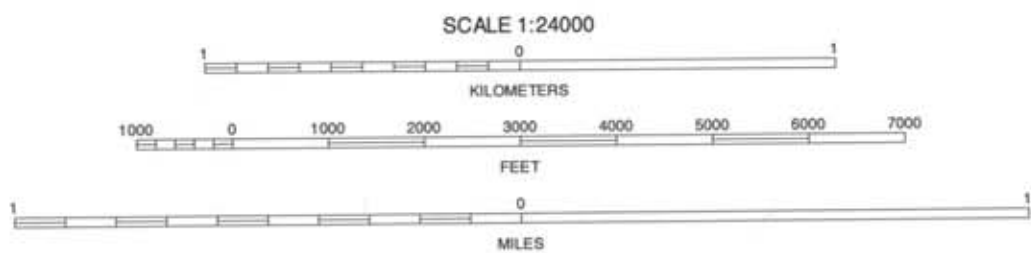
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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

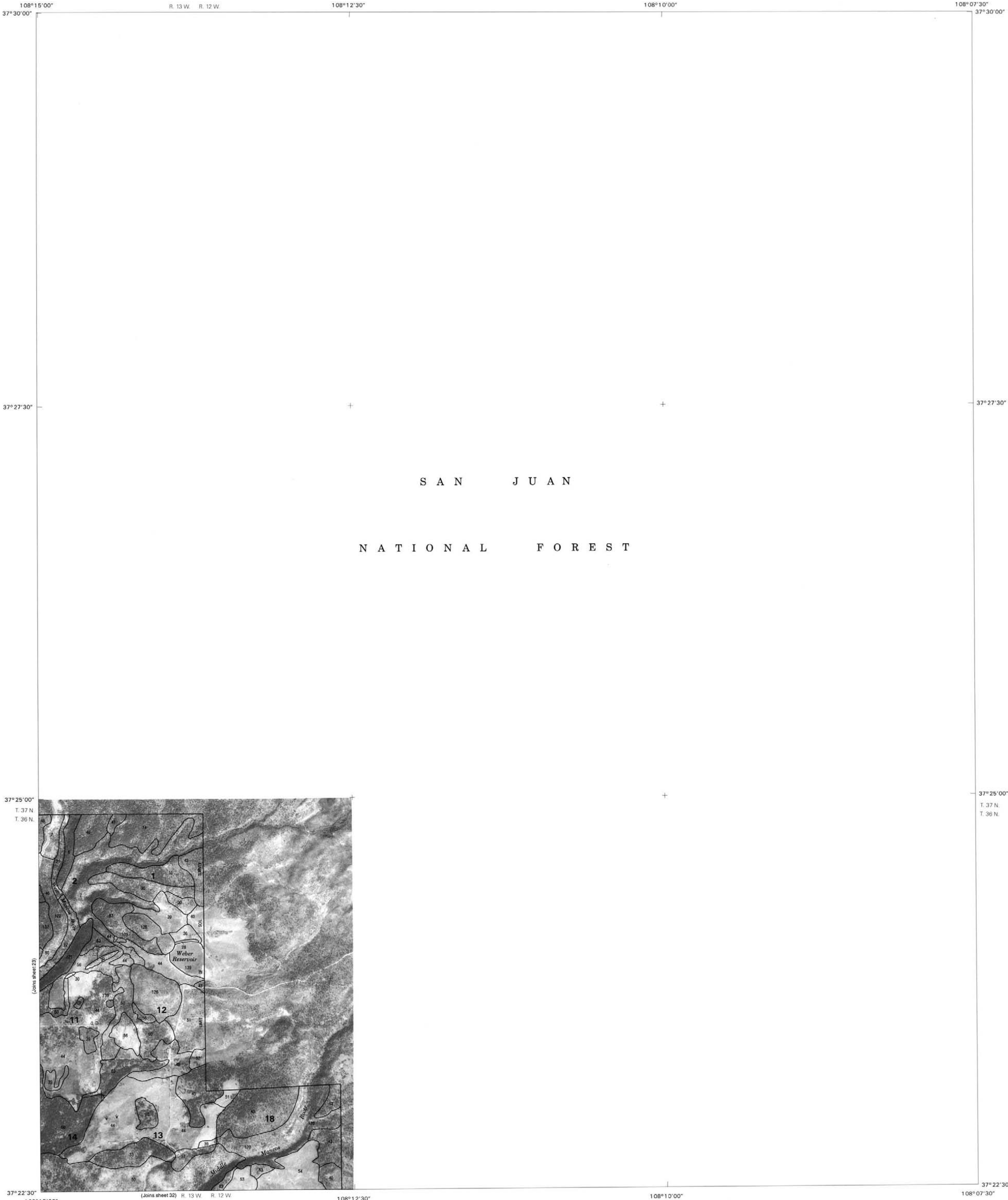


CORTEZ AREA, COLORADO NO. 23

1	2	3	1 BOGGY DRAW
4	5	2 STONER	
6	7	3 WALLACE RANCH	
		4 DOLORES EAST	
		5 RAMPART HILLS	
		6 POINT LOOKOUT	
		7 MANCOS	
		8 THOMPSON PARK	

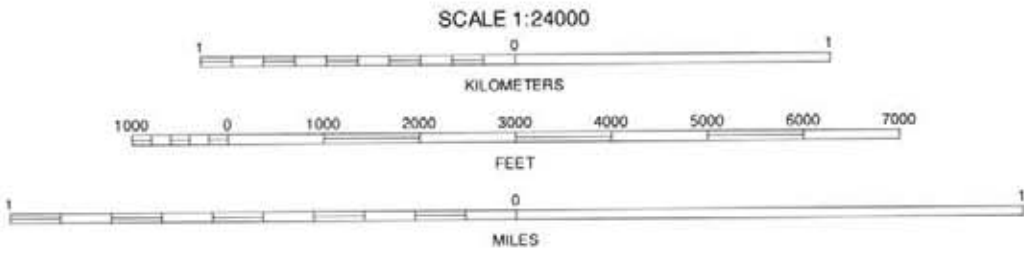
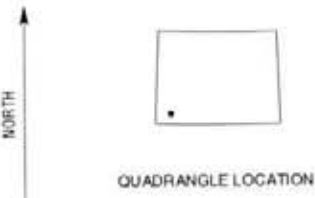
INDEX TO ADJOINING 7.5 MAPS

MILLWOOD, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 23 OF 39



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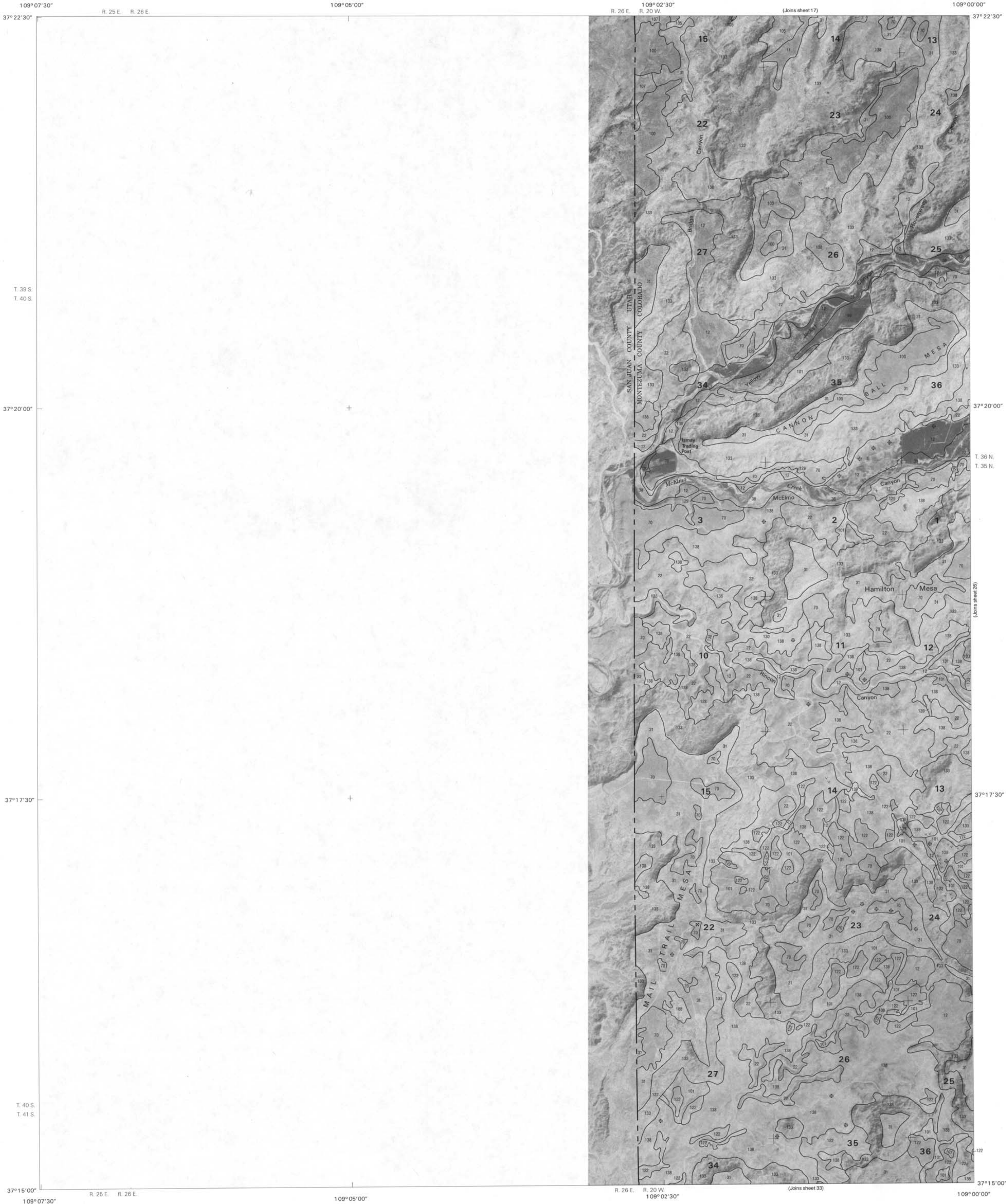
North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



1	2	3
4	5	6
7	8	9

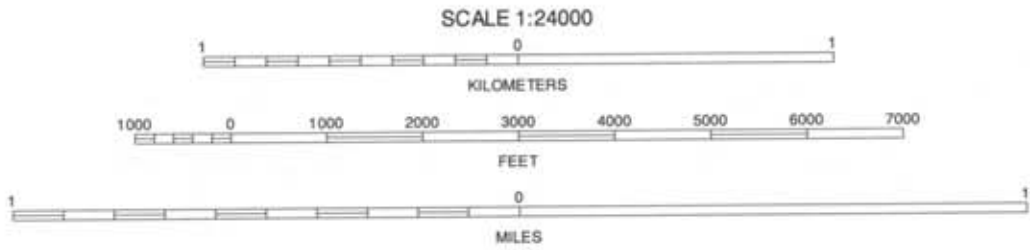
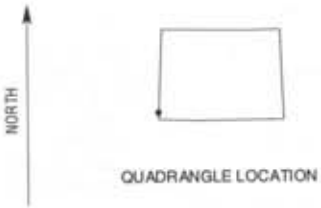
INDEX TO ADJOINING 7.5 MAPS

RAMPART HILLS, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 24 OF 39



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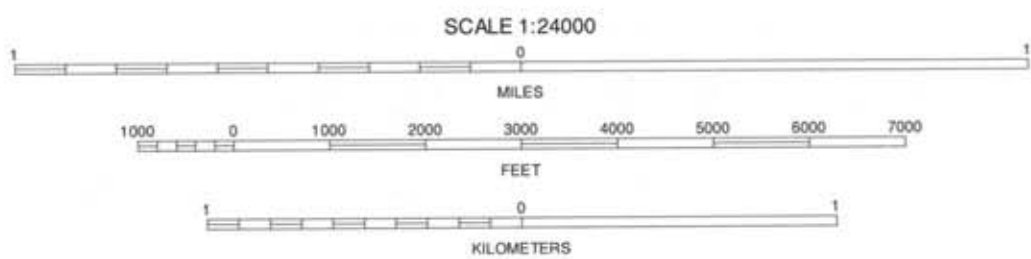
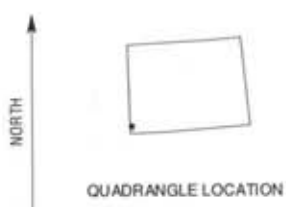
1	2	3	1 HATCH TRADING POST
4	5	2 NEGRO CANYON	
6	7	3 NAVAJO CANYON	
		4 BOWDISH CANYON	
		5 ANETH	
		6 PETERS NIPPLE	
		7 MARIANO WASH WEST	
		8	

WICKIUP CANYON, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 25 OF 39



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North American Datum of 1927 (NAD27). Clarke 1866 Spheroid. 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



1	2	3	1 RUIN POINT
			2 NEGRO CANYON
4		5	3 WOODS CANYON
			4 WICKIUP CANYON
6	7	8	5 BATTLE ROCK
			6 PETERS NIPPLE
			7 MARIANO WASH WEST
			8 MARIANO WASH EAST

INDEX TO ADJOINING 7.5 MAPS

BOWDISH CANYON, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 26 OF 39



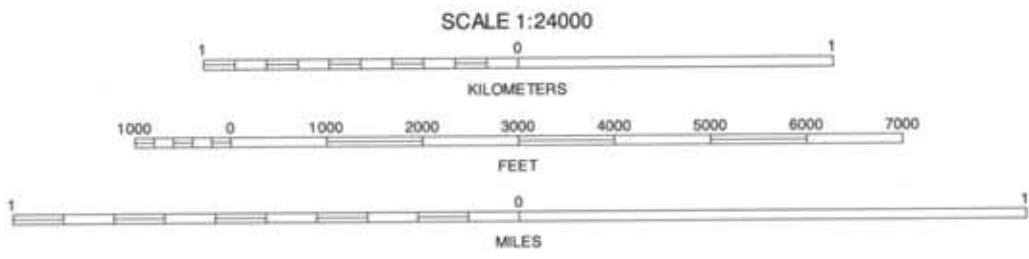
UTE MOUNTAIN
INDIAN RESERVATION

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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

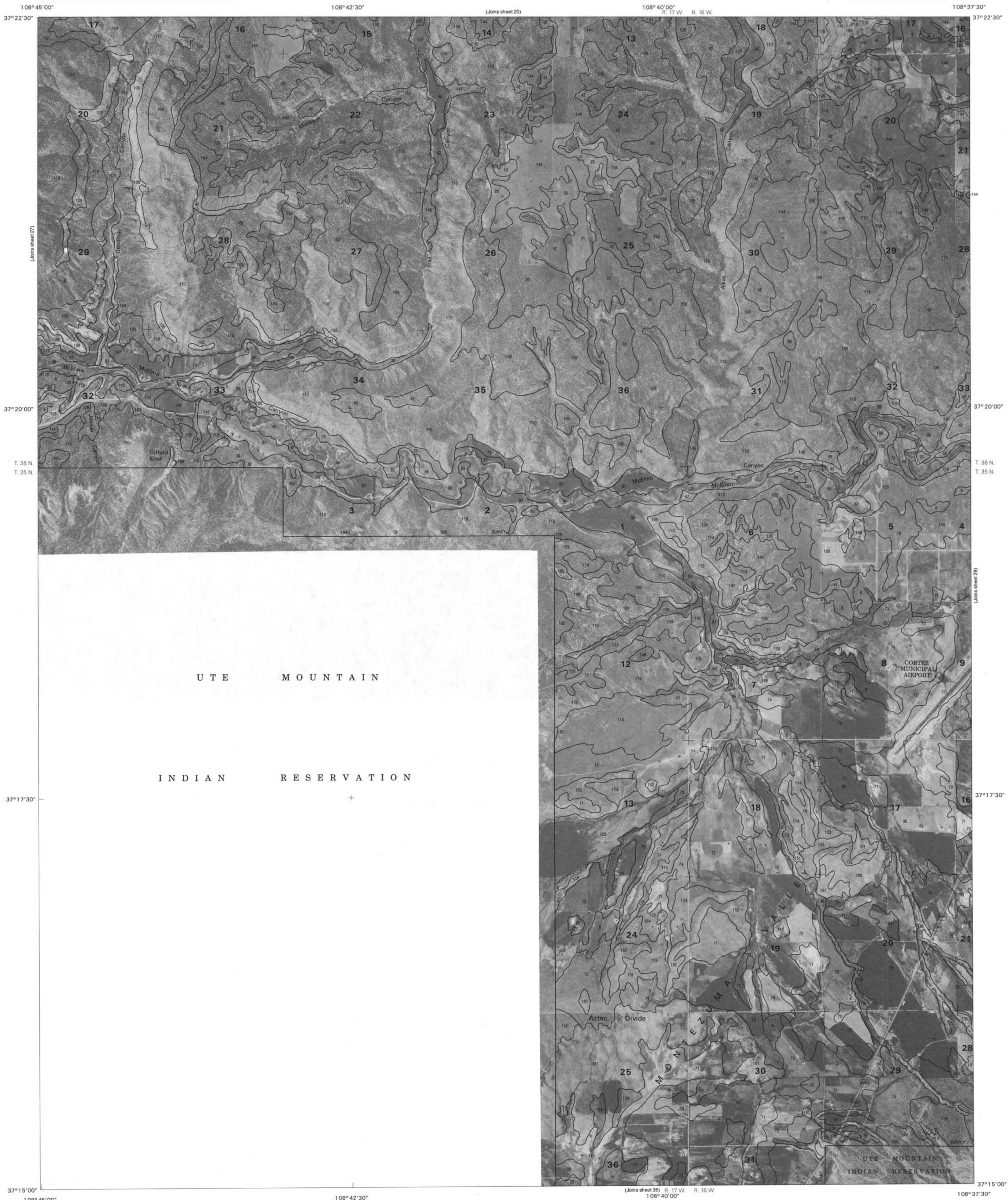
QUADRANGLE LOCATION



1	2	3
4	5	6
7	8	9

INDEX TO ADJOINING 7.5-MINUTE MAPS

BATTLE ROCK, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 27 OF 39



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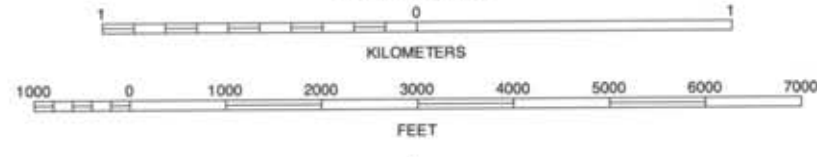
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NORTH



QUADRANGLE LOCATION

SCALE 1:24000



1	2	3	1 WOODS CANYON
4	5	6	2 APRIL A
7	8	9	3 DOLORES WEST
10	11	12	4 BATTLE ROCK
13	14	15	5 CORTEZ
16	17	18	6 MARIANO WASH EAST
19	20	21	7 TOWAOC
22	23	24	8 WETHERILL MESA

INDEX TO ADJOINING 7.5 MAPS

MUD CREEK, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 28 OF 39



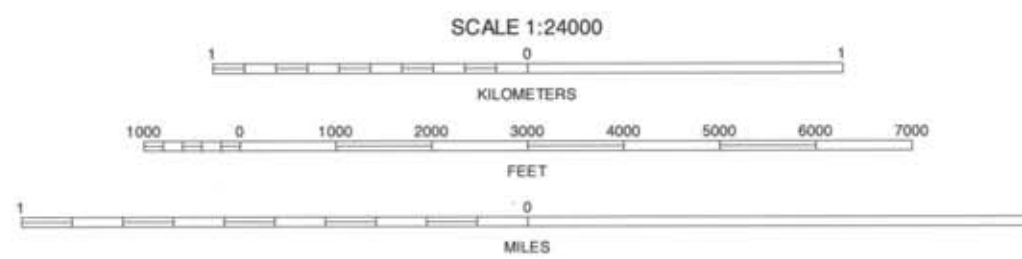
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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



CORTEZ AREA, COLORADO NO. 29

1	2	3
4	5	6
7	8	9

INDEX TO ADJOINING 7.5 MAPS

1 ARRIOLA
2 DOLORES WEST
3 DOLORES EAST
4 MUD CREEK
5 POINT LOOKOUT
6 TOWAC
7 WETHERILL MESA
8 MOCCASIN MESA

CORTEZ, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 29 OF 39

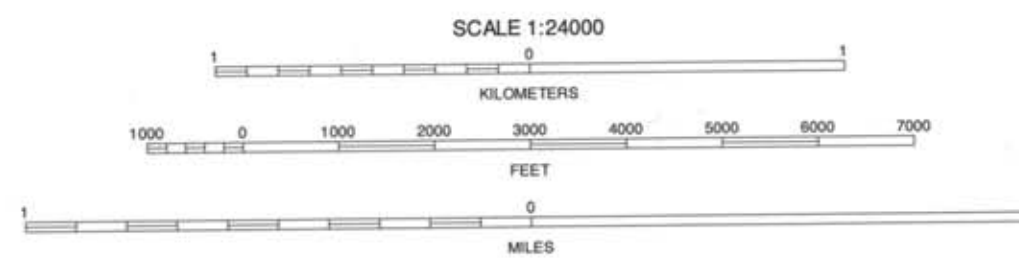


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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

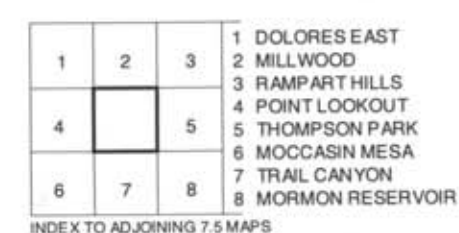


CORTEZ AREA, COLORADO NO. 30

1	2	3
4	5	6
7	8	9

POINT LOOKOUT, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 30 OF 39

INDEX TO ADJOINING 7.5 MAPS





North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



6	7	8	7 MORRISON RESERVOIR
			8 KLINE

INDEX TO ADJOINING 7.5 MAPS

7.5 MINUTE SERIES
SHEET NUMBER 32 OF 39

109°07'30" 109°05'00" 109°02'30" 109°00'00"

37°15'00" 37°12'30" 37°10'00" 37°07'30"

R. 25 E. R. 26 E. R. 20 W. R. 26 E.

UTE MOUNTAIN INDIAN RESERVATION

(Joins sheet 25)

34 35 36

SAN JUAN COUNTY MONTICELLO

UTAH

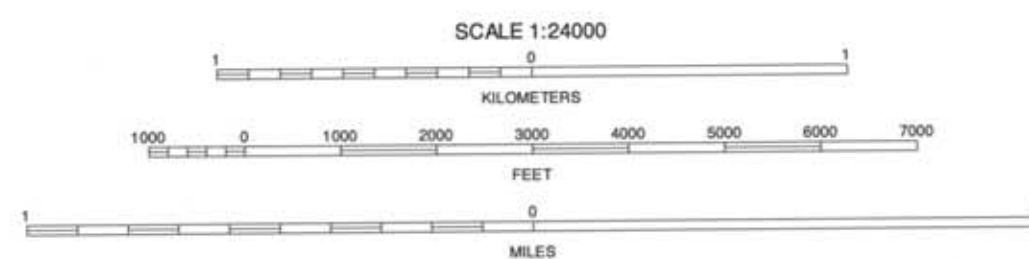
T. 41 S. T. 42 S. T. 34 N. T. 33 1/2 N. T. 34 N. T. 33 N.

R. 25 E. R. 26 E. R. 20 W. 109°02'30"

North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



CORTEZ AREA, COLORADO NO. 33

1	2	3	1 NAVAJO CANYON
			2 WICKIUP CANYON
4		5	3 BOWDISH CANYON
			4 ANETH
6	7	8	5 MARIANO WASH WEST
			6 YELLOW ROCK POINT WEST
			7 YELLOW ROCK POINT EAST
			8 SENTINEL PEAK SW

INDEX TO ADJOINING 7.5 MAPS

PETERS NIPPLE, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 33 OF 39



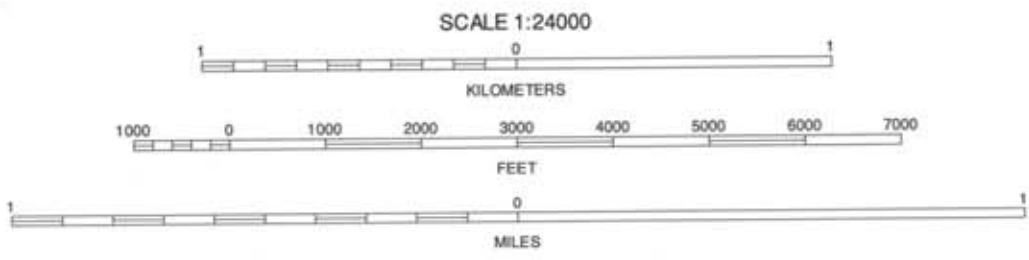
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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 12.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



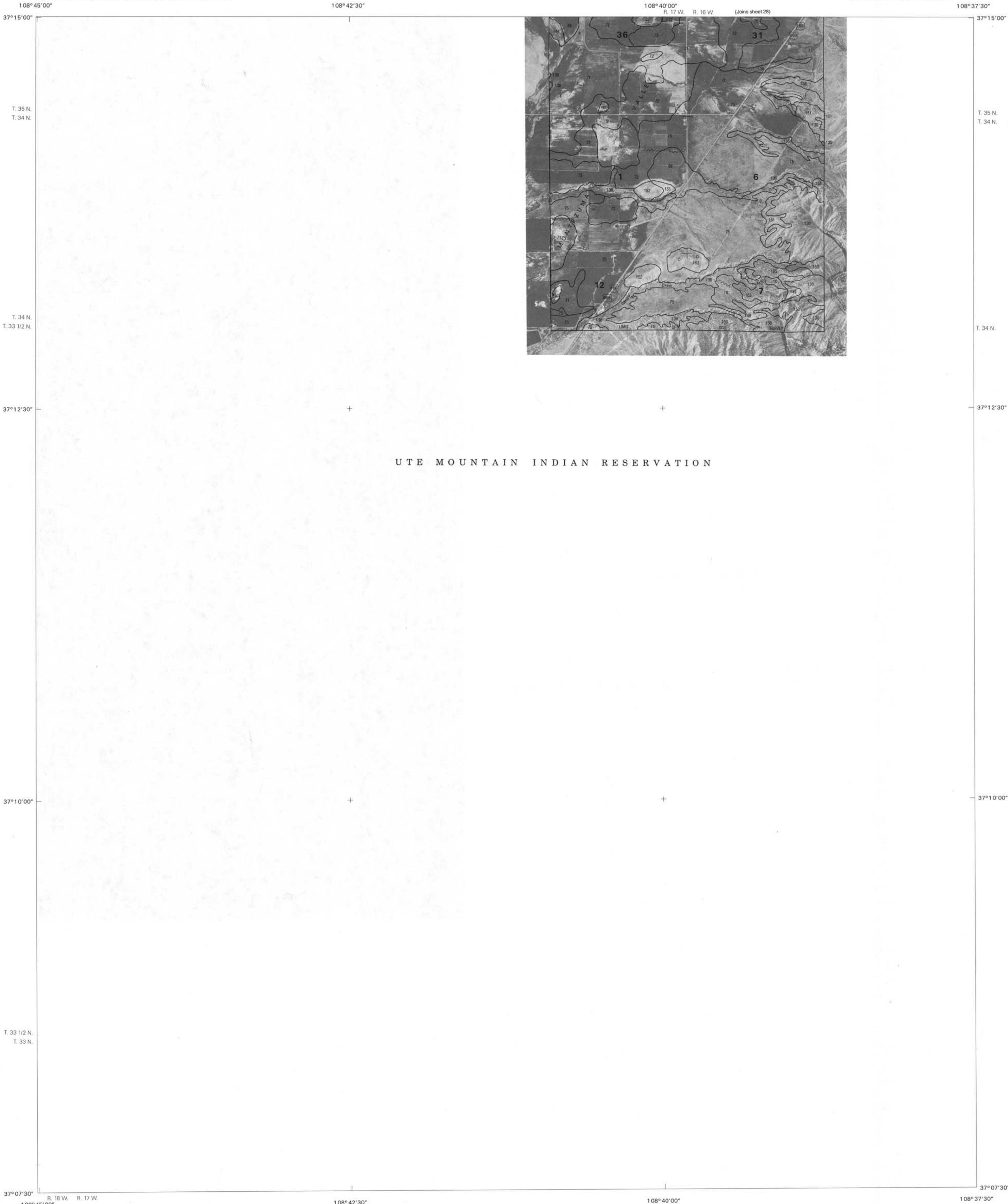
CORTEZ AREA, COLORADO NO. 34

1	2	3	1 WICKIUP CANYON
			2 BOWDISH CANYON
			3 BATTLE ROCK
4		5	4 PETERS NIPPLE
			5 MARIANO WASH EAST
			6 YELLOW ROCK POINT EAST
6	7	8	7 SENTINEL PEAK SW
			8 SENTINEL PEAK SE

INDEX TO ADJOINING 7.5 MAPS

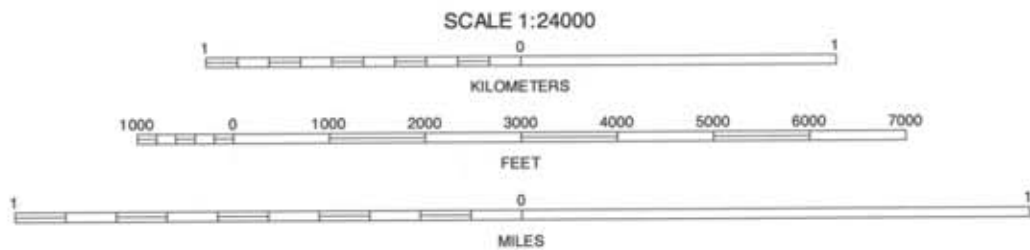
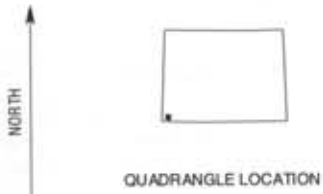
INDEX TO ADJOINING 7.5 MAPS

MARIANO WASH WEST, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 34 OF 39



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1975-1979 aerial photography.

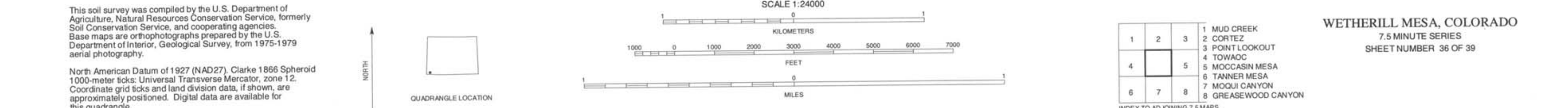
North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



1	2	3	1 BATTLE ROCK
4	5	2 MUD CREEK	3 CORTEZ
6	7	4 MARIANO WASH EAST	5 WETHERILL MESA
		6 SENTINEL PEAK SE	7 TANNER MESA
		8 MOQUI CANYON	

INDEX TO ADJOINING 7.5 MAPS

TOWAOC, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 35 OF 39



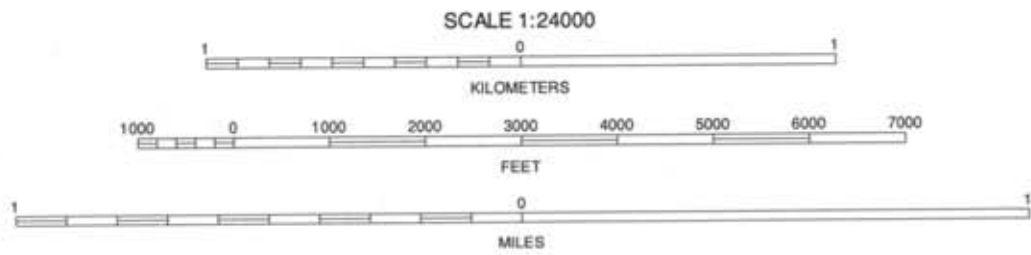


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North American Datum of 1927 (NAD27). Clarke 1866 Spheroid. 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

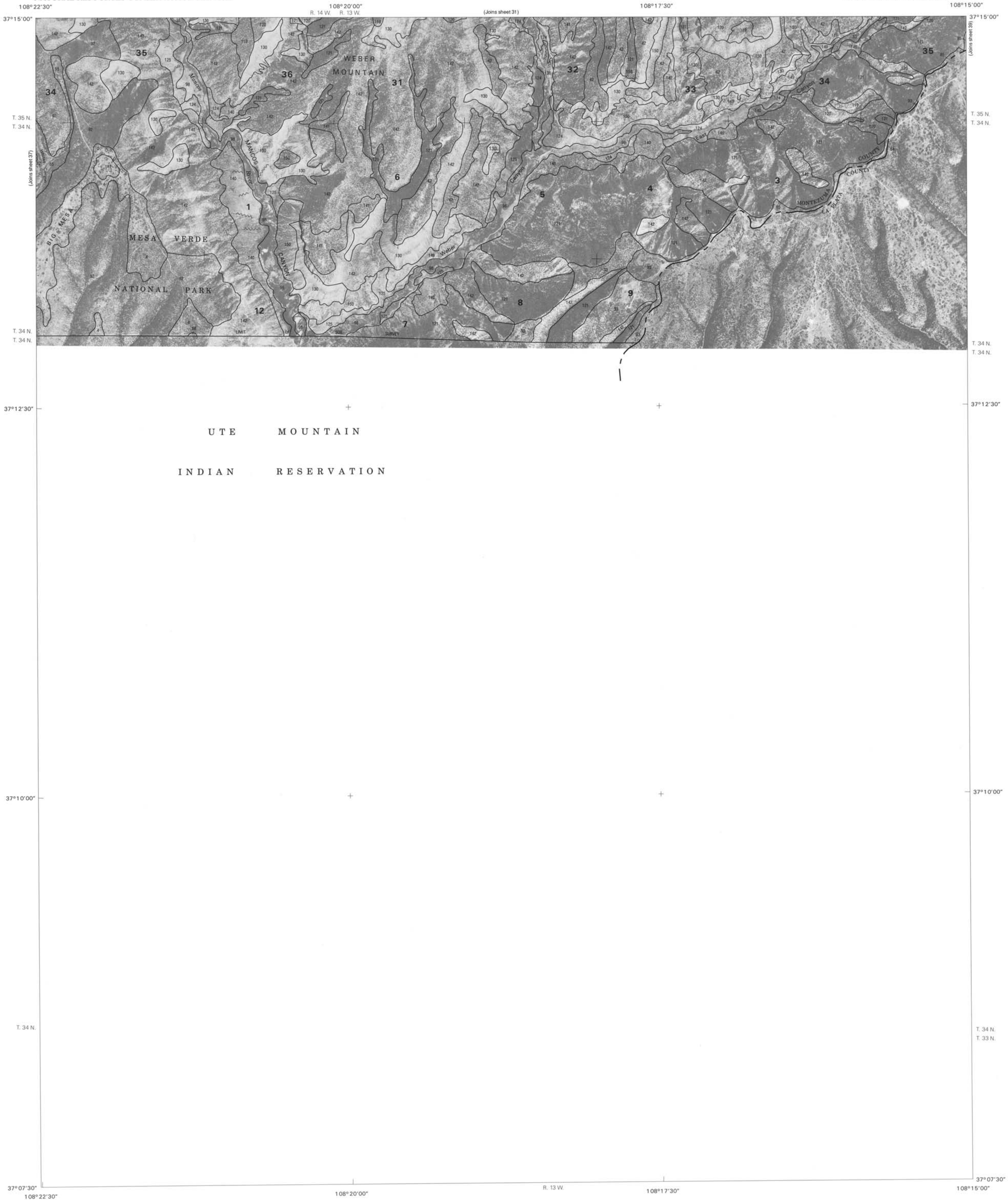


CORTEZ AREA, COLORADO NO. 37

1	2	3	1 CORTEZ
4	5	6	2 POINT LOOKOUT
7	8	9	3 MANCOS
10	11	12	4 WETHERILL MESA
13	14	15	5 TRAIL CANYON
16	17	18	6 MOQUI CANYON
19	20	21	7 GREASEWOOD CANYON
22	23	24	8 RED HORSE GULCH

INDEX TO ADJOINING 7.5 MAPS

MOCCASIN MESA, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 37 OF 39



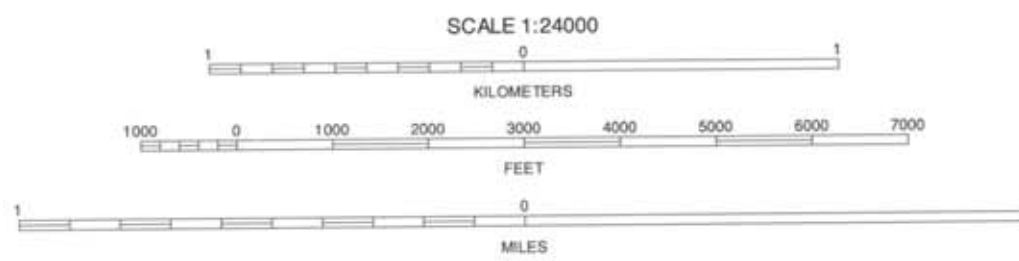
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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



CORTEZ AREA, COLORADO NO. 38

1	2	3	1. POINT LOOKOUT
4	5	2. MANCOS	
6	7	3. THOMPSON PARK	
		4. MOCCASIN MESA	
		5. MORMON RESERVOIR	
		6. GREASEWOOD CANYON	
		7. RED HORSE GULCH	
		8. RED MESA	

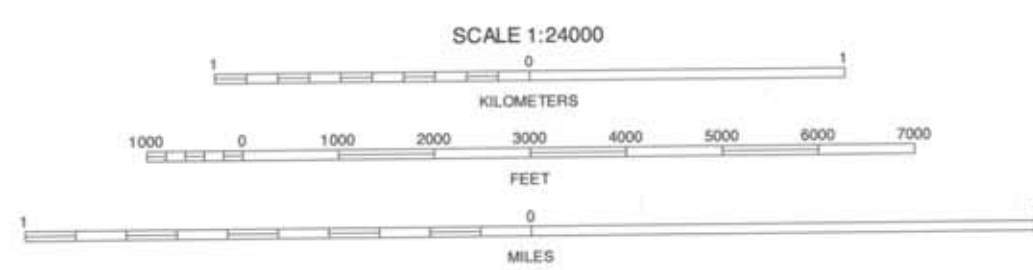
INDEX TO ADJOINING 7.5 MAPS

TRAIL CANYON, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 38 OF 39

North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



1	2	3	1 MANCOS
			2 THOMPSON PARK
4		5	3 HESPERUS
			4 TRAIL CANYON
6	7	8	5 KLINE
			6 RED HORSE GULCH
			7 REDMESA
			8 PINKERTON MESA

INDEX TO ADJOINING 7.5 MAPS

INDEX TO ADJOINING 7.5 MAPS

MORMON RESERVOIR, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 39 OF 39